SECTION 2.
LICENSING OF RADIOACTIVE MATERIALS

RH-200. **Definitions**.

Dose commitment – The total radiation dose to a part of the body that will result from retention in the body of radioactive material. For purposes of estimating the dose commitment, it is assumed that from the time of intake the period of exposure to retained material will not exceed 50 years.

Lot Tolerance Percent Defective – Expressed in percent defective, the poorest quality in an individual inspection lot that should be accepted.

Sealed Source and Device Registry – The national registry that contains all the registration certificates, generated by both the Nuclear Regulatory Commission and the Agreement States, that summarize the radiation safety information for the sealed sources and devices and describe the licensing and use conditions approved for the product.

RH-301.

b. **Certain items containing radioactive material**.

1. Except for persons who apply radioactive material to, or persons who incorporate radioactive material into, the following products, any person is exempt from these Regulations to the extent that such person receives, possesses, uses, transfers, owns or acquires the following products:~~3/~~

A. Time pieces or hands or dials containing not more than the following specified quantities of radioactive material and not exceeding the following specified levels of radiation: ...

B. ~~Reserved.~~

i. Static elimination devices which contain, as a sealed source or sources, radioactive material consisting of a total of not more than 500 µCi (18.5 MBq) of polonium-210 per device.

ii. Ion generating tubes designed for ionization of air that contain, as a sealed source or sources, radioactive material consisting of a total of not more than 500 µCi (18.5 MBq) of polonium-210 per

device or of a total of not more than 50 mCi (1.85 GBq) of hydrogen-3 (tritium) per device.

iii. Such devices authorized before October 23, 2012 for use under the general license then provided in RH-402.l. and equivalent regulations of the U.S. Nuclear Regulatory Commission and Agreement States and manufactured, tested, and labeled by the manufacturer in accordance with the specifications contained in a specific license issued by the NRC.

d. **Gas and aerosol detectors containing radioactive material**.

1. Except for persons who manufacture, process, produce, or initially transfer for sale or distribution gas and aerosol detectors containing radioactive material, any person is exempt from the requirements for a license set forth in the Act and from these Regulations to the extent that such person receives, possesses, uses, transfers, owns or acquires radioactive material in gas and aerosol detectors designed to protect ~~life~~ health, safety, or property, ~~from fires and airborne hazards provided that detectors containing radioactive material shall have been~~ and manufactured, processed, produced, or initially transferred in accordance with a specific license issued ~~by the U.S. Nuclear Regulatory Commission~~ [5/] ~~pursuant to~~ under 10 CFR 32.26~~; or an Agreement State pursuant to a 10 CFR 32.26 equivalent~~, which license authorizes the initial transfer of the ~~detectors to persons who are exempt from regulatory requirements~~ product for use under RH-301.d. This exemption also covers gas and aerosol detectors manufactured or distributed before November 30, 2007, in accordance with a specific license issued by an Agreement State under comparable provisions to 10 CFR 32.26 authorizing distribution to persons exempt from regulatory requirements.

~~2. Gas and aerosol detectors previously manufactured and distributed to general licensees in accordance with a specific license issued by an Agreement State shall be considered exempt under RH-301.d.1., provided that the device is labeled in accordance with the specific license authorizing distribution of the generally licensed device and provided further that they meet the requirements of RH-405.g.~~

Any person who desires to manufacture, process, or produce gas and aerosol detectors containing radioactive material, or to initially transfer such products for use under RH-301.d.1., should apply for a license under 10 CFR 32.26 and for a certificate of registration in accordance with 10 CFR 32.210 or equivalent Agreement State regulations.

~~3. Gas and aerosol detectors containing Naturally Occurring Radioactive Material (NORM) previously manufactured and distributed in accordance with a specific license issued by a Licensing State shall be considered exempt under RH-301.d.1., provided that the device is labeled in accordance with the specific license authorizing distribution and provided further that they meet the requirements of RH-405.g.~~

e. **Self-luminous products containing radioactive material**.

1. **Tritium, krypton-85, or promethium-147**.

Except for persons who manufacture, process, produce, or initially transfer for sale or distribution self-luminous products containing tritium, krypton-85 or promethium-147, any person is exempt from these Regulations to the extent that such person receives, possesses, uses, transfers, owns, or acquires tritium, krypton-85 or promethium-147 in self-luminous products manufactured, processed, produced, or initially transferred in accordance with a specific license issued by the U.S. Nuclear Regulatory Commission pursuant to 10 CFR 32.22, which license authorizes the transfer of the product to persons who are exempt from regulatory requirements or equivalent regulations of an Agreement State. The exemption in RH-301.e. does not apply to tritium, krypton-85 or promethium-147 used in products primarily for frivolous purposes or in toys or adornments.

2. **Radium-226**.

Any person is exempt from these Regulations to the extent that such person receives, possesses, uses, transfers, or owns articles containing less than 0.1 μCi (3.7 kBq) of radium-226 which were manufactured prior to November 30, 2007.

3. Any person who desires to manufacture, process, or produce<u>, or initially transfer for sale or distribution</u> self-luminous products containing tritium, krypton-85, or promethium-147~~, or to transfer such products for use pursuant to RH-301.e.1.~~ <u>for use under RH-301.e.1.</u>, should apply for a license ~~pursuant to~~ <u>under</u> 10 CFR 32.22~~, which license states that the product may be transferred by the licensee to persons exempt from the regulations pursuant to RH-301.e.1. or equivalent regulations of an Agreement State.~~ <u>and for a certificate of registration in accordance with 10 CFR 32.210 or equivalent Agreement State regulations.</u>

f. **Radioactive drug: capsules containing carbon-14 urea for "in vivo" diagnostic use for humans**.

1. Except as provided in paragraphs RH-301.f.2. and RH-301.f.3., any person is exempt from the requirements for a license and from the regulations in this Section and Section 9 provided that such person receives, possesses, uses, transfers, owns, or acquires capsules containing one (1) microcurie (37 kBq) carbon-14 urea (allowing for nominal variation that may occur during the manufacturing process) each, for "in vivo" diagnostic use for humans.

2. Any person who desires to use the capsules for research involving human subjects shall apply for and receive a specific license pursuant to Section 9.

3. Any person who desires to manufacture, prepare, process, produce, package, repackage, or transfer for commercial distribution such capsules shall apply for and receive a specific license pursuant to ~~RH-405.o~~ 10 CFR 32.21.

4. Nothing in ~~this Section~~ RH-301.f. relieves persons from complying with applicable Food & Drug Administration (FDA), other Federal, and State requirements governing receipt, administration, and use of drugs.

g. **Certain industrial devices.**

1. Except for persons who manufacture, process, produce, or initially transfer for sale or distribution industrial devices containing radioactive material designed and manufactured for the purpose of detecting, measuring, gauging or controlling thickness, density, level, interface location, radiation, leakage, or qualitative or quantitative chemical composition, or for producing an ionized atmosphere, any person is exempt from the requirements for a license set forth in the Act and from these Regulations to the extent that such person receives, possesses, uses, transfers, owns, or acquires radioactive material, in these certain detecting, measuring, gauging, or controlling devices and certain devices for producing an ionized atmosphere, and manufactured, processed, produced, or initially transferred in accordance with a specific license issued under 10 CFR 32.30, which license authorizes the initial transfer of the device for use under RH-301.g. This exemption does not cover sources not incorporated into a device, such as calibration and reference sources.

2. Any person who desires to manufacture, process, produce, or initially transfer for sale or distribution industrial devices containing radioactive material for use under RH-301.g.1., should apply for a license under 10 CFR 32.30 and for a certificate of registration in accordance with 10 CFR 32.210 or equivalent Agreement State regulations.

RH-302. **Carriers**.

Common and contract carriers, freight forwarders, ~~and~~ warehousemen, and the U.S. Postal Service ~~operating within this state~~ are exempt from ~~these~~ the ~~R~~regulations in this Section and Part I of Section 3, Part J of Section 3, and Sections 6 through 9 and the requirements for a license set forth in the Act to the extent that they transport or store ~~sources of radiation~~ radioactive material in the regular course of ~~their~~ carriage for another or storage incident thereto.

RH-305. **Exempt Quantities**.

d. No person may, for purposes of commercial distribution, transfer radioactive material in the individual quantities set forth in Schedule B to Section 2, knowing or having reason to believe that such quantities of radioactive material will be transferred to persons exempt under this section or equivalent regulations of the U.S. Nuclear Regulatory Commission or any Agreement State, except in accordance with a specific license issued by the U.S. Nuclear Regulatory Commission pursuant to section 32.18 of 10 CFR Part 32, which license states that the radioactive material may be transferred by the licensee to persons exempt under this ~~RH-305.~~ section or the equivalent regulations of the U.S. Nuclear Regulatory Commission or any Agreement State.~~5/~~

~~RH-405~~. **Special Requirements for the Issuance of Certain Specific Licenses**.

RH-402. **General Licenses - Radioactive Material Other Than Source Material**.

~~q.~~ j. **Products containing radium-226**.

1. A general license is hereby issued to any person to acquire, receive, possess, use, or transfer, in accordance with the provisions of RH-~~405.q~~402.j.2. through 4., radium-226 contained in the following products manufactured prior to November 30, 2007.

A. Antiquities originally intended for use by the general public. For the purposes of this ~~sub-~~subparagraph, antiquities mean products originally intended for use by the general public and distributed in the late 19th and early 20th centuries, such as radium emanator jars, revigators, radium water jars, radon generators, refrigerator cards, radium bath salts, and healing pads.

B. Intact timepieces containing greater than one (1) microcurie (0.037 MBq), nonintact timepieces, and timepiece hands and dials no longer installed in timepieces.

C. Luminous items installed in air, marine, or land vehicles.

D. All other luminous products, provided that no more than 100 items are used or stored at the same location at any one time.

E. Small radium sources containing no more than one (1) microcurie (0.037 MBq) of radium-226. For the purposes of this ~~sub-~~subparagraph,‘‘small radium sources’’ means discrete survey instrument check sources, sources contained in radiation measuring instruments, sources used in educational demonstrations (such as cloud chambers and spinthariscopes), electron tubes, lightning rods, ionization sources, static eliminators, or as designated by the Nuclear Regulatory Commission.

2. Persons who acquire, receive, possess, use, or transfer ~~byproduct~~ radioactive material under the general license issued in RH-~~405.q~~.402.j.1. are exempt from the provisions of Section 3 (including RH-1502.e. through g.), and RH-600., to the extent that the receipt, possession, use, or transfer of ~~byproduct~~ radioactive material is within the terms of the general license; provided, however, that this exemption shall not be deemed to apply to any such person specifically licensed under this Section.

3. Any person who acquires, receives, possesses, uses, or transfers ~~byproduct~~ radioactive material in accordance with the general license in RH-~~405.q~~402.j.1. shall:

A. Notify the Department should there be any indication of possible damage to the product so that it appears it could result in a loss of the radioactive material. A report containing a brief description of the event, and the remedial action taken, must be furnished within 30 days to:

Arkansas Department of Health
Radiation Control Section
Attention: Radioactive Materials Program
4815 West Markham Street, Slot #30
Little Rock, Arkansas 72205

B. Not abandon products containing radium-226. The product, and any radioactive material from the product, may only be disposed of according to RH-1408. or by transfer to a person authorized by a specific license to

receive the radium- 226 in the product or as otherwise approved by the Nuclear Regulatory Commission or an Agreement State.

C. Not export products containing radium-226 except in accordance with 10 CFR Part 110.

D. Dispose of products containing radium-226 at a disposal facility authorized to dispose of radioactive material in accordance with any Federal or State solid or hazardous waste law, including the Solid Waste Disposal Act, as authorized under the Energy Policy Act of 2005, by transfer to a person authorized to receive radium-226 by a specific license issued under Section 2, or equivalent regulations of the Nuclear Regulatory Commission or an Agreement State, or as otherwise approved by the Nuclear Regulatory Commission or an Agreement State.

E. Respond to written requests from the Department to provide information relating to the general license within 30 calendar days of the date of the request, or other time specified in the request. If the general licensee cannot provide the requested information within the allotted time, it shall, within that same time period, request a longer period to supply the information by providing the Radiation Control Section Chief or his designee, by an appropriate method listed in 10 CFR 30.6(a), a written justification for the request.

4. The general license in RH-~~405.q~~402.j.1. does not authorize the manufacture, assembly, disassembly, repair, or import of products containing radium-226, except that timepieces may be disassembled and repaired.

~~j. **Intrastate transportation of radioactive material**.~~

~~A general license is hereby issued to any common or contract carrier to transport and store radioactive material in the regular course of their carriage for another or storage incident thereto, provided the transportation and storage is in accordance with the applicable requirements of these Regulations, appropriate to the mode of transport; and of the U.S. Department of Transportation insofar as such regulations relate to the loading and storage of packages, placarding of the transporting vehicle and incident reporting.[7/] Persons who transport and store radioactive material pursuant to the general license in this paragraph are exempt from the requirements of Section 3 of these Regulations.~~

k. **~~General license for~~ u~~U~~se of radioactive material for certain *in vitro* clinical or laboratory testing**.[8/]

l. ~~Certain devices and equipment.~~

~~A general license is hereby issued to transfer, receive, acquire, own, possess, and use radioactive material incorporated in the following devices or equipment which have been manufactured, tested, and labeled by the manufacturer in accordance with a specific license issued to the manufacturer by the NRC or an Agreement State for use pursuant to 10 CFR 32.14. This general license is subject to the provisions of RH-60., RH-301.a.2, RH-409., RH-416., RH-500., RH-501., RH-600., RH-601., RH-602., RH-700., RH-751., RH-4012., Section 3[6/], and Section 4 of these Regulations, as applicable.~~

~~1. Static elimination device.~~

~~Devices designed for use as static eliminators which contain, as a sealed source or sources, radioactive material consisting of a total of not more than 500 microcuries (18.5 MBq) of polonium-210 per device.~~

~~2. Ion generating tube.~~

~~Devices designed for ionization of air which contain, as a sealed source or sources, radioactive material consisting of a total of not more than 500 microcuries (18.5 MBq) of polonium-210 per device or a total of not more than 50 millicuries (1.85 GBq) of hydrogen-3 (tritium) per device.~~

Reserved.

RH-403. **Application for Specific Licenses**.

a. Application for specific licenses shall be filed on forms supplied by the Arkansas Department of Health, Radiation Control Section, 4815 West Markham Street, Mail Slot # 30, Little Rock, Arkansas 72205-3867. The application shall set forth all applicable information called for by the form. An application for a license may request a license for one or more activities.

b. The Department may at any time after the filing of the original application and before the expiration of the license, require further statements in order to enable the Department to determine whether the application should be granted or denied or whether a license should be modified or revoked. …

g. **Requirements for emergency response plans for certain licensees**.

1. Each application to possess radioactive materials in unsealed form, on foils or plated sources, or sealed in glass in excess of the quantities in RH-905., Schedule F to Section 2 – "Quantities of Radioactive Materials Requiring Consideration of the Need for an Emergency Plan for Responding to a Release," must contain either:

   A. An evaluation showing that the maximum dose to a person offsite due to a release of radioactive materials would not exceed 0.5 rem effective dose equivalent or 5 rem to the thyroid; or

   B. An emergency plan for responding to a release of radioactive material.

2. One or more of the following factors may be used to support an evaluation submitted under RH-403.g.1.A.:

   A. The radioactive material is physically separated so that only a portion could be involved in an accident;

   B. All or part of the radioactive material is not subject to release during an accident because of the way it is stored or packaged; …

3. An emergency plan for responding to a release of radioactive material submitted under RH-403.g.1.B. must include the following information: …

   H. **Notification and coordination**.

   A commitment to and a brief description of the means to promptly notify offsite response organizations and request offsite assistance, including medical assistance for the treatment of contaminated injured onsite workers when appropriate. A control point must be established. The notification and coordination must be planned so that unavailability of some personnel, parts of the facility, and some equipment will not prevent the notification and coordination. The licensee shall also commit to notify the Department immediately ~~and ensure~~ after notification of ~~other~~ the appropriate offsite response organizations and not later than one hour after the licensee declares an emergency.

h. 1. Except as provided in paragraphs h.2., h.3., and h.4. of this section, ~~A~~an application for a specific license to use radioactive material in

the form of a sealed source or in a device that contains the sealed source must either:

~~1.~~ A. Identify the source or device by manufacturer and model number as registered with the U.S. Nuclear Regulatory Commission under 10 CFR 32.210, ~~or~~ with an Agreement State, or for a source or a device containing Radium-226 or accelerator-produced radioactive material with a~~n~~ ~~Agreement~~ State under provisions comparable to 10 CFR 32.210; or

~~2.~~ B. Contains the information identified in 10 CFR 32.210(c).

~~3.~~ 2. For sources or devices ~~containing naturally occurring or accelerator-produced radioactive material manufactured prior to November 30, 2007~~ manufactured before October 23, 2012 that are not registered with the NRC under 10 CFR 32.210 or with an Agreement State, and for which the applicant is unable to provide all categories of information specified in 10 CFR 32.210(c), the ~~applicant~~ application must ~~provide~~ include:

A. All available information identified in 10 CFR 32.210(c) concerning the source, and, if applicable, the device; and

B. Sufficient additional information to demonstrate that there is reasonable assurance that the radiation safety properties of the source or device are adequate to protect health and minimize danger to life and property. Such information must include a description of the source or device, a description of radiation safety features, the intended use and associated operating experience, and the results of a recent leak test.

3. For sealed sources and devices allowed to be distributed without registration of safety information in accordance with 10 CFR 32.210(g)(1), the applicant may supply only the manufacturer, model number, and radionuclide and quantity.

4. If it is not feasible to identify each sealed source and device individually, the applicant may propose constraints on the number and type of sealed sources and devices to be used and the conditions under which they will be used, in lieu of identifying each sealed source and device.

i. ~~Deleted~~.

In accordance with RH-409.h., certain licensees must furnish a proposed decommissioning funding plan or a certification of financial assurance for decommissioning.

RH-405. **Special Requirements for the Issuance of Certain Specific Licenses**.

e. **Licensing of the manufacture or initial transfer of devices to persons generally licensed under RH-402.a.**

1. ~~In addition to satisfying the requirements set forth in Part D, RH-404., a~~An application for a specific license to manufacture or initially transfer devices containing radioactive material, excluding special nuclear material, to persons generally licensed under RH-402.a. or equivalent regulations of the NRC or an Agreement State will be approved if:

A. The applicant satisfies the general requirements of RH-404.;

~~1.~~ B. The applicant submits sufficient information relating to the design, manufacture, prototype testing, quality control, labels, proposed uses, installation, servicing, leak testing, operating and safety instructions and potential hazards of the device to provide reasonable assurance that:

~~A.~~ i. The device can be safely operated by persons not having training in radiological protection;

~~B.~~ ii. Under ordinary conditions of handling, storage, and use of the device, the radioactive material contained in the device will not be released or inadvertently removed from the device, and it is unlikely that any person will receive in any period of one (1) calendar year a dose in excess of 10% of the limits specified in RH-1200.a.; and

~~C.~~ iii. Under accident conditions (such as fire and explosion) associated with handling, storage, and use of the device, it is unlikely that any person would receive an external radiation dose or dose commitment in excess of the following organ doses:

Part of body	**Dose in rem**
Whole body; head and trunk; active blood-forming organs; gonads; or lens of eye	15
Hands and forearms; feet and ankles; localized areas of skin averaged over areas no larger than one (1) square centimeter	200
Other organs	50

~~D.~~ C. Each device bears a durable, legible, clearly visible label or labels approved by the Department, which contain in a clearly identified and separate statement:

i. Instructions and precautions necessary to assure safe installation, operation, and servicing of the device (documents such as operating and service manuals may be identified in the label and used to provide this information);

ii. The requirement, or lack of requirement, for leak testing, or for testing any on-off mechanism and indicator, including the maximum time interval for such testing, and the identification of radioactive material by isotope, quantity or radioactivity, and date of determination of the quantity; and

RH-405.e.1.D. (Cont'd)

iii. The information called for in the following statement in the same or substantially similar form[9/]:

"**The receipt, possession, use and transfer of this device, Model _____, [9/10/] Serial No. _____,[9/10/] are subject to a general license or the equivalent and the regulations of the U.S. NRC or of a State with which the NRC has entered into an agreement for the exercise of regulatory authority. This label shall be maintained on the device in a legible condition. Removal of this label is prohibited.**

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_____

(name of manufacturer or initial transferor)"

~~E.~~D. Each device having a separable source housing that provides the primary shielding for the source also bears, on the source housing, a durable label containing the device model number and serial number, the isotope and quantity, the words "**Caution-Radioactive Material**," the radiation symbol described in RH-1303., and the name of the manufacturer or initial distributor.

~~F.~~E. Each device meeting the criteria of RH-402.c.13.A., bears a permanent (e.g., embossed, etched, stamped, or engraved) label affixed to the source housing if separable, or the

device if the source housing is not separable, that includes the words "**Caution-Radioactive Material**," and, if practicable, the radiation symbol described in RH-1303.

F. The device has been registered in the Sealed Source and Device Registry. ...

h. **Licensing of the manufacture, assembly, ~~or~~ repair, or initial transfer of luminous safety devices for use in aircraft**.

1. An application for a specific license to manufacture, assemble, ~~or~~ repair, or initially transfer luminous safety devices containing Tritium or Promethium-147 for use in aircraft, for distribution to persons generally licensed under RH-402.f., will be approved if:

~~1.~~ A. The applicant satisfies the general requirements specified in RH-404.; ~~and~~

~~2.~~ B. The applicant ~~satisfies the requirements of Sections 32.53, 32.54, 32.55, 32.56 and 32.101 of 10 CFR Part 32 or their equivalent.~~ submits sufficient information regarding each device pertinent to evaluation of the potential radiation exposure, including:

i. Chemical and physical form and maximum quantity of Tritium or Promethium-147 in each device;

ii. Details of construction and design;

iii. Details of the method of binding or containing the Tritium or Promethium-147;

iv. Procedures for and results of prototype testing to demonstrate that the Tritium or Promethium-147 will not be released to the environment under the most severe conditions likely to be encountered in normal use;

v. Quality assurance procedures to be followed that are sufficient to ensure compliance with RH-405.h.3.;

vi. Any additional information, including experimental studies and tests, required by the Department to facilitate a determination of the safety of the device.

C. Each device will contain no more than 10 curies of Tritium or 300 millicuries of Promethium-147. The levels of

radiation from each device containing Promethium-147 will not exceed 0.5 millirad per hour at 10 centimeters from any surface when measured through 50 milligrams per square centimeter of absorber.

D. The Department determines that:

i. The method of incorporation and binding of the Tritium or Promethium-147 in the device is such that the Tritium or Promethium-147 will not be released under the most severe conditions which are likely to be encountered in normal use and handling of the device;

ii. The Tritium or Promethium-147 is incorporated or enclosed so as to preclude direct physical contact by any person with it;

iii. The device is so designed that it cannot easily be disassembled; and

iv. Prototypes of the device have been subjected to and have satisfactorily passed the tests required by RH-405.h.1.E.

E. The applicant shall subject at least five prototypes of the device to tests as follows:

i. The devices are subjected to tests that adequately take into account the individual, aggregate, and cumulative effects of environmental conditions expected in service that could adversely affect the effective containment of Tritium or Promethium-147, such as temperature, moisture, absolute pressure, water immersion, vibration, shock, and weathering.

ii. The devices are inspected for evidence of physical damage and for loss of Tritium or Promethium-147, after each stage of testing, using methods of inspection adequate for determining compliance with the criteria in 405.h.1.E.iii.

iii. Device designs are rejected for which the following has been detected for any unit:

(a). A leak resulting in a loss of 0.1 percent or more of the original amount of Tritium or Promethium-147 from the device; or

(b). Surface contamination of Tritium or Promethium-147 on the device of more than 2,200 disintegrations per minute per 100 square centimeters of surface area; or

(c). Any other evidence of physical damage.

F. The device has been registered in the Sealed Source and Device Registry.

2. **Labeling of devices.**

A. A person licensed under RH-405.h. to manufacture, assemble, or initially transfer devices containing Tritium or Promethium-147 for distribution to persons generally licensed under RH-402.f. shall, except as provided in RH-405.h.2.B., affix to each device a label containing the radiation symbol prescribed by RH-1303., such other information as may be required by the Department including disposal instructions when appropriate, and the following or a substantially similar statement which contains the information called for in the following statement[9/]:

"**The receipt, possession, use and transfer of this device, Model _____,[10/] Serial No. _____,[10/] containing _____ (identity and quantity of radioactive material) are subject to a general license or the equivalent and the regulations of the U.S. NRC or of a State with which the NRC has entered into an agreement for the exercise of regulatory authority. Do not remove this label.**

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(name of manufacturer, assembler, or initial transferor)"

B. If the Department determines that it is not feasible to affix a label to the device containing all the information called for in RH-405.h.2.A., it may waive the requirements of that paragraph and require in lieu thereof that:

i. A label be affixed to the device identifying:

(a). The manufacturer, assembler, or initial transferor; and

(b). The type of radioactive material; and

ii. A leaflet bearing the following information be enclosed in or accompany the container in which the device is shipped:

(a). The name of the manufacturer, assembler, or initial transferor,

(b). The type and quantity of radioactive material,

(c). The model number,

(d). A statement that the receipt, possession, use, and transfer of the device are subject to a general license or the equivalent and the regulations of the U.S. NRC or of an Agreement State, and

(e). Such other information as may be required by the Department, including disposal instructions when appropriate.

3. **Quality assurance; prohibition of transfer.**

A. Each person licensed under RH-405.h. shall visually inspect each device and shall reject any that has an observable physical defect that could adversely affect containment of the Tritium or Promethium-147.

B. Each person licensed under RH-405.h. shall:

i. Maintain quality assurance systems in the manufacture of the luminous safety device in a manner sufficient to provide reasonable assurance that the safety-related components of the distributed devices are capable of performing their intended functions; and

ii. Subject inspection lots to acceptance sampling procedures, by procedures specified in RH-405.h.3.C. and in the license issued under RH-405.h., to provide at least 95 percent confidence that the Lot Tolerance Percent Defective of 5.0 percent will not be exceeded.

C. The licensee shall subject each inspection lot to:

i. Tests that adequately take into account the individual, aggregate, and cumulative effects of environmental conditions expected in service that could adversely affect the effective containment of Tritium or Promethium-147, such as absolute pressure and water immersion.

ii. Inspection for evidence of physical damage, containment failure, or for loss of Tritium or Promethium-147 after each stage of testing, using methods of inspection adequate for applying the following criteria for defective:

(a). A leak resulting in a loss of 0.1 percent or more of the original amount of Tritium or Promethium-147 from the device;

(b). Levels of radiation in excess of 0.5 millirad (5 microgray) per hour at 10 centimeters from any surface when measured through 50 milligrams per square centimeter of absorber, if the device contains Promethium-147; and

(c). Any other criteria specified in the license issued under RH-405.h.

D. No person licensed under RH-405.h. shall transfer to persons generally licensed under RH-402.f., or under an equivalent general license of the NRC or an Agreement State:

i. Any luminous safety device tested and found defective under any condition of a license issued under RH-405.h., or RH-405.h.3.B., unless the defective luminous safety device has been repaired or reworked, retested, and determined by an independent inspector to meet the applicable acceptance criteria; or

ii. Any luminous safety device contained within any lot that has been sampled and rejected as a result of the procedures in RH-405.h.3.B.ii., unless:

(a). A procedure for defining sub-lot size, independence, and additional testing procedures is contained in the license issued under RH-405.h.; and

(b). Each individual sub-lot is sampled, tested, and accepted in accordance with RH-405.h.3.B.ii. and RH-405.h.3.D.ii.(a). and any other criteria that may be required as a condition of the license issued under RH-405.h.

4. **Material transfer reports.**

A. Each person licensed under RH-405.h. shall file an annual report with the Department, which must state the total quantity of Tritium or Promethium-147 transferred to persons generally licensed under RH-402.f. The report must identify each general licensee by name, state the kinds and numbers of luminous devices transferred, and specify the quantity of Tritium or Promethium-147 in each kind of device. Each report must cover the year ending June 30 and must be filed within thirty (30) days thereafter. If no transfers have been made to persons generally licensed under RH-402.f. during the reporting period, the report must so indicate.

B. Each person licensed under RH-405.h. shall report annually all transfers of devices to persons for use under an RH-402.f. equivalent general license of the NRC or an Agreement State to the NRC or responsible Agreement State agency. The report must state the total quantity of Tritium or Promethium-147 transferred, identify each general licensee by name, state the kinds and numbers of luminous devices transferred, and specify the quantity of Tritium or Promethium-147 in each kind of device. If no transfers have been made to a NRC jurisdiction or to a particular Agreement State during the reporting period, this information must be reported to the NRC or to the responsible Agreement State agency upon request of the appropriate governing agency.

i. **~~Special requirements for license to~~ Licensing of the manufacture or initially~~y~~ transfer of calibration or reference sources containing americium-241, plutonium, or radium-226 ~~for distribution to persons generally licensed under RH-402.g~~.**

1. An application for a specific license to manufacture or initially transfer calibration ~~and~~ or reference sources containing americium-241, plutonium, or radium-226 for distribution to persons generally licensed under RH-402.g. will be approved if:

A. The applicant satisfies the general requirements of RH-404.; ~~and~~

B. The applicant submits sufficient information regarding each type of calibration or reference source pertinent to evaluation of the potential radiation exposure, including:

i. Chemical and physical form and maximum quantity of americium 241, plutonium, or radium-226 in the source;

ii. Details of construction and design;

iii. Details of the method of incorporation and binding of the americium-241, plutonium, or radium-226 in the source;

iv. Procedures for and results of prototype testing of sources, which are designed to contain more than 0.005 microcuries (185 Bq) of americium-241, plutonium, or radium-226, to demonstrate that the americium-241, plutonium, or radium-226 contained in each source will not be released or be removed from the source under normal conditions of use;

v. Details of quality control procedures to be followed in manufacture of the source;

vi. Description of labeling to be affixed to the source or the storage container for the source;

vii. Any additional information, including experimental studies and tests, required by the Department to facilitate a determination of the safety of the source.

C. Each source will contain no more than 5 microcuries (185 kBq) of americium-241, plutonium, or radium-226.

D. The Department determines, with respect to any type of source containing more than 0.005 microcuries (185 Bq) of americium-241, plutonium, or radium-226, that:

i. The method of incorporation and binding of the americium-241, plutonium, or radium-226 in the source is such that the americium-241, plutonium, or radium-226 will not be released or be removed from the source under normal conditions of use and handling of the source; and

ii. The source has been subjected to and has satisfactorily passed ~~the prototype~~ appropriate tests ~~prescribed~~ required by RH-405.i.~~2~~1.E.

~~2. Prototype tests for calibration or reference sources containing americium-241, plutonium, or radium-226.~~

~~An applicant for a license pursuant to RH-405.i. shall, for any type of source which is designed to contain more than 0.005 microcuries (185 Bq) of americium-241, plutonium, or radium-226, conduct prototype tests, in the order listed, on each of five prototypes of such source, which contains more than 0.005 microcuries (185 Bq) of americium-241, plutonium, or radium-226, as follows:~~

~~A. Initial measurement. The quantity of radioactive material deposited on the source shall be measured by direct counting of the source.~~

~~B. Dry wipe test. The entire radioactive surface of the source shall be wiped with filter paper with the application of moderate finger pressure. Removal of radioactive material from the source shall be determined by measuring the radioactivity on the filter paper or by direct measurement of the radioactivity on the source following the dry wipe.~~

~~RH-405.i.2. (Cont'd)~~

~~C. Wet wipe test. The entire radioactive surface of the source shall be wiped with filter paper, moistened with water, with the application of moderate finger pressure. Removal of radioactive material from the source shall be determined by measuring the radioactivity on the filter paper after it has dried or by direct measurement of the radioactivity on the source following the wet wipe.~~

~~D. Water soak test. The source shall be immersed in water at room temperature for a period of 24 consecutive hours. The source shall then be removed from the water. Removal of radioactive material from the source shall be determined by direct measurement of the radioactivity on the source after it has dried or by measuring the radioactivity in the residue obtained by evaporation of the water in which the source was immersed.~~

~~E. Dry wipe test. On completion of the preceding test in this section, the dry wipe test described in RH-405.i.2.B. shall be repeated.~~

~~F. Observations. Removal of more than 0.005 microcuries (185 Bq) of radioactivity in any test prescribed by this section shall be cause for rejection of the source design. Results of prototype tests submitted to the Department shall be given in terms of radioactivity in microcuries and percent of removal from the total amount of radioactive material deposited on the source.~~

E. The applicant shall subject at least five prototypes of each source that is designed to contain more than 0.005 microcuries (185 Bq) of americium-241, plutonium, or radium-226 to tests as follows:

i. The initial quantity of radioactive material deposited on each source is measured by direct counting of the source.

ii. The sources are subjected to tests that adequately take into account the individual, aggregate, and cumulative effects of environmental conditions expected in service that could adversely affect the effective containment or binding of americium-241, plutonium, or radium-226, such as physical handling, moisture, and water immersion.

iii. The sources are inspected for evidence of physical damage and for loss of americium-241, plutonium, or radium-226, after each stage of testing, using methods of inspection adequate for determining compliance with the criteria in RH-405.i.1.E.iv.

iv. Source designs are rejected for which the following has been detected for any unit: removal of more than 0.005 microcuries (185 Bq) of americium-241, plutonium, or radium-226 from the source or any other evidence of physical damage.

~~3.~~ 2. **Labeling of devices**.

Each person licensed under RH-405.i.. shall affix to each source, or storage container for the source, a label which shall contain sufficient information relative to safe use and storage of the source and shall include the following statement or a substantially similar statement which contains the information called for in the following statement:~~10~~9/

"The receipt, possession, use, and transfer of this source, Model __, Serial No. __, are subject to a general license and the regulations of the ~~NRC~~ United States Nuclear Regulatory Commission or ~~an Agreement~~ of a State with which the Commission has entered into an agreement for the exercise of regulatory authority. Do not remove this label.

CAUTION--RADIOACTIVE MATERIAL
THIS SOURCE CONTAINS AMERICIUM-241
[PLUTONIUM OR RADIUM-226].
DO NOT TOUCH RADIOACTIVE PORTION OF THIS SOURCE.

_____
Name of manufacturer or initial transferor"

~~4.~~ 3. **Leak testing of each source**.

Each person licensed under RH-405.i. shall perform a dry wipe test upon each source containing more than 0.1 microcuries (3.7 kBq) of americium-241, plutonium, or radium-226 ~~prior to~~ before transferring the source to a general licensee under RH-402.g. or under equivalent regulations of the NRC or of an Agreement State. This test shall be performed by wiping the entire radioactive surface of the source with a filter paper with the application of moderate finger pressure. The radioactivity on the filter paper shall be measured ~~by~~ using ~~radiation detection instrumentation~~ methods capable of detecting 0.005 microcuries (185 Bq) of americium-241, plutonium, or radium-226. ~~If any such test discloses more than 0.005 microcuries (185 Bq) of radioactive material, the source shall be deemed to be leaking or losing americium-241, plutonium, or radium-226 and shall not be transferred to a general licensee under RH-402.g. or equivalent regulations of an Agreement State~~. If a source has been shown to be leaking or losing more than 0.005 microcuries (185 Bq) of americium-241, plutonium, or radium-226 by the methods described in RH-405.i.3., the source must be rejected and must not be transferred to a general licensee under RH-402.g., or equivalent regulations of the NRC or an Agreement State.

k. **Licensing of the manufacture ~~and distribution~~ or initial transfer of ice detection devices containing strontium-90**.

1. An application for a specific license to manufacture ~~and distribute~~ or initially transfer ice detection devices containing strontium-90 for distribution to persons generally licensed under RH-402.i. will be approved if:

~~1.~~ A. The applicant satisfies the general requirements of RH-404.; ~~and~~

~~2. The criteria of Sections 32.61, 32.62 and 32.103 of 10 CFR Part 32 are met.~~

B. The applicant submits sufficient information regarding each type of device pertinent to evaluation of the potential radiation exposure, including:

i. Chemical and physical form and maximum quantity of strontium-90 in the device;

ii. Details of construction and design of the source of radiation and its shielding;

iii. Radiation profile of a prototype device;

iv. Procedures for and results of prototype testing of devices to demonstrate that the strontium-90 contained in each device will not be released or be removed from the device under the most severe conditions likely to be encountered in normal handling and use;

v. Details of quality control procedures to be followed in manufacture of the device;

vi. Description of labeling to be affixed to the device;

vii. Instructions for handling and installation of the device;

viii. Any additional information, including experimental studies and tests, required by the Department to facilitate a determination of the safety of the device.

C. Each device will contain no more than 50 microcuries (1.85 MBq) of strontium-90 in an insoluble form.

D. Each device will bear durable, legible labeling which includes the radiation caution symbol prescribed by RH-1303., a statement that the device contains strontium-90 and the quantity thereof, instructions for disposal and statements that the device may be possessed pursuant to a general license, that the manufacturer or civil authorities should be notified if the device is found, that removal of the labeling is prohibited and that disassembly and repair of the device may be performed only by a person holding a specific license to manufacture or service such devices.

E. The Department determines that:

i. The method of incorporation and binding of the strontium-90 in the device is such that the strontium-90 will not be released from the device under the most severe conditions which are likely to be encountered in normal use and handling of the device;

ii. The strontium-90 is incorporated or enclosed so as to preclude direct physical contact by any individual with it and is shielded so that no individual will receive a radiation exposure to a major portion of his body in excess of 0.5 rem (5 mSv) in a year under ordinary circumstances of use;

iii. The device is so designed that it cannot be easily disassembled;

iv. Prototypes of the device have been subjected to and have satisfactorily passed the tests required by RH-405.k.1.F.

v. Quality control procedures have been established to satisfy the requirements of RH-405.k.2.

F. The applicant shall subject at least five prototypes of the device to tests as follows:

i. The devices are subjected to tests that adequately take into account the individual, aggregate, and cumulative effects of environmental conditions expected in service that could adversely affect the effective containment of strontium-90, such as temperature, moisture, absolute pressure, water immersion, vibration, shock, and weathering.

ii. The devices are inspected for evidence of physical damage and for loss of strontium-90 after each stage of testing, using methods of inspection adequate for determining compliance with the criteria in RH-405.k.1.F.iii.

iii. Device designs are rejected for which the following has been detected for any unit:

(a). A leak resulting in a loss of 0.1 percent or more of the original amount of strontium-90 from the device; or

(b). Surface contamination of strontium-90 on the device of more than 2,200 disintegrations per minute per 100 square centimeters of surface area; or

(c). Any other evidence of physical damage.

G. The device has been registered in the Sealed Source and Device Registry.

2. **Quality assurance; prohibition of transfer.**

A. Each person licensed under RH-405.k. shall visually inspect each device and shall reject any which has an observable physical defect that could affect containment of the strontium-90.

B. Each person licensed under RH-405.k. shall test each device for possible loss of strontium-90 or for contamination by wiping with filter paper an area of at least 100 square centimeters on the outside surface of the device, or by wiping the entire surface area if it is less than 100 square centimeters. The detection on the filter paper of more than 2,200 disintegrations per minute of radioactive material per 100 square centimeters of surface wiped shall be cause for rejection of the tested device.

C. Each person licensed under RH-405.k. shall:

i. Maintain quality assurance systems in the manufacture of the ice detection device containing strontium-90 in a manner sufficient to provide reasonable assurance that the safety-related components of the distributed devices are capable of performing their intended functions; and

ii. Subject inspection lots to acceptance sampling procedures, by procedures specified in RH-405.k.2.D. and in the license issued under RH-405.k., to provide at least 95 percent confidence that the Lot Tolerance Percent Defective of 5.0 percent will not be exceeded.

D. Each person licensed under RH-405.k. shall subject each inspection lot to:

i. Tests that adequately take into account the individual, aggregate, and cumulative effects of

environmental conditions expected in service that could possibly affect the effective containment of strontium-90, such as absolute pressure and water immersion.

ii. Inspection for evidence of physical damage, containment failure, or for loss of strontium-90 after each stage of testing, using methods of inspection adequate to determine compliance with the following criteria for defective: A leak resulting in a loss of 0.1 percent or more of the original amount of strontium-90 from the device and any other criteria specified in the license issued under RH-405.k.

E. No person licensed under RH-405.k. shall transfer to persons generally licensed under RH-402.i., or under an equivalent general license of the NRC or of an Agreement State:

i. Any ice detection device containing strontium-90 tested and found defective under the criteria specified in a license issued under RH-405.k., unless the defective ice detection device has been repaired or reworked, retested, and determined by an independent inspector to meet the applicable acceptance criteria; or

ii. Any ice detection device containing strontium-90 contained within any lot that has been sampled and rejected as a result of the procedures in RH-405.k.2.C.ii., unless:

(a). A procedure for defining sub-lot size, independence, and additional testing procedures is contained in the license issued under RH-405.k.; and

(b). Each individual sub-lot is sampled, tested, and accepted in accordance with 405.k.2.C.ii. and RH-405.k.2.E.ii.(a). and any other criteria as may be required as a condition of the license issued under RH-405.k.

n. **Manufacture and distribution of sources or devices containing radioactive material for medical use**.

1. An application for a specific license to manufacture and distribute sources and devices containing radioactive material to persons licensed under Section 9, "Use of Radionuclides in the Healing Arts," for use as a calibration, transmission, or reference source or for the uses listed in RH-8600., RH-8620., RH-8630., and RH-8670. will be approved if:

   A. The applicant satisfies the general requirements in RH-404.; …

   D. The source or device has been registered in the Sealed Source and Device Registry.

~~o.~~ ~~Radioactive drug: manufacture, preparation, or transfer for commercial distribution of capsules containing carbon-14 urea for "in vivo" diagnostic use for humans to persons exempt from licensing: Requirements for a license.~~

~~1. An application for a specific license to manufacture, prepare, produce, package, repackage, or transfer for commercial distribution capsules containing one (1) microcurie (37 kBq) carbon-14 urea (allowing for nominal variation that may occur during the manufacturing process) each for "in vivo" diagnostic use, to persons exempt from licensing under RH-301.f. or the equivalent regulations of the Nuclear Regulatory Commission or of an Agreement State will be approved if:~~

~~A. The applicant satisfies the general requirements specified in RH-404., provided that the requirements of RH-404.a.1. and a.2. do not apply to an application for a license to transfer radioactive material manufactured, prepared, processed, produced, packaged, or repackaged pursuant to a license issued by the Nuclear Regulatory Commission or another Agreement State;~~

~~B. The applicant meets the requirements under RH-405.l.1.B. of this Section;~~

~~C. The applicant provides evidence that each capsule contains one (1) microcurie (37 kBq) carbon-14 urea (allowing for nominal variation that may occur during the manufacturing process);~~

~~D. The carbon-14 urea is not contained in any food, beverage, cosmetic, drug (except as described in this paragraph o.) or other commodity designed for ingestion or inhalation by, or topical application to, a human being;~~

E. The carbon-14 urea is in the form of a capsule, identified as radioactive, and to be used for its radioactive properties, but is not incorporated into any manufactured or assembled commodity, product, or device intended for commercial distribution; and

F. The applicant submits copies of prototype labels and brochures and the Department approves these labels and brochures.

RH-405.o. (Cont'd)

2. Nothing in this paragraph o. relieves the licensee from complying with applicable Food & Drug Administration (FDA), other Federal, and State requirements governing drugs.

p. Radioactive drug: manufacture, preparation, or transfer for commercial distribution of capsules containing carbon-14 urea for "in vivo" diagnostic use for humans to persons exempt from licensing: Conditions of license.

Each license issued under RH-405.o. is subject to the following conditions:

1. The immediate container of the capsule(s) must bear a durable, legible label which:

A. Identifies the radioisotope, the physical and chemical form, the quantity of radioactivity of each capsule at a specific date; and

B. Bears the words "**Radioactive Material**."

2. In addition to the labeling information required by RH-405.p.1., the label affixed to the immediate container, or an accompanying brochure also must:

A. State that the contents are exempt from NRC or Agreement State licensing requirements; and

B. Bear the words:

"**Radioactive Material. For "In Vivo" Diagnostic Use Only. This Material Is Not To Be Used For Research Involving Human Subjects and Must Not Be Introduced into Foods, Beverages, Cosmetics, or Other Drugs or Medicinals, or into Products Manufactured For Commercial Distribution. This Material May Be Disposed of in Ordinary Trash**."

RH-409. **Specific Terms and Conditions of Licenses**.

a. Each license issued pursuant to these Regulations shall be subject to all the provisions of the Act now or hereafter in effect and to all rules, regulations and orders of the Department.

b. 1. No license issued or granted ~~under these Regulations and no right to possess or utilize radioactive material granted by any license issued~~ pursuant to these Regulations nor any right under a license shall be transferred, assigned or in any manner disposed of, either voluntarily or involuntarily, directly or indirectly, through transfer of control of any license to any person, unless the Department shall, after securing full information, find that the transfer is in accordance with the provisions of the Act and shall give its consent in writing. …

2. An application for transfer of license must include:

A. The identity, technical and financial qualifications of the proposed transferee; and

B. Financial assurance for decommissioning information required by RH-409.h.

g. **Bankruptcy notification**.

1. Each general licensee that is required to register by RH-402.c.13. and each specific licensee shall notify the Department in writing immediately following the filing of a voluntary or involuntary petition for bankruptcy under any chapter of Title 11 (Bankruptcy) of the United States Code by or against:

A. The licensee;

B. An entity (as that term is defined in 11 U.S.C. 101(15)) controlling the licensee or listing the license or licensee as property of the estate; or

C. An affiliate (as that term is defined in 11 U.S.C. 101(2)) of the licensee.

h. **Financial assurance and record keeping for decommissioning**.

1. A. Each applicant for a specific license authorizing the possession and use of unsealed radioactive material of half-life greater than 120 days and in quantities exceeding 10^5 times the applicable quantities set forth in Appendix B to

Section 3, shall submit a decommissioning funding plan as described in RH-409.h.5. ~~of this section~~. The decommissioning funding plan must also be submitted when a combination of isotopes is involved if R divided by 10^5 is greater than 1 (unity rule), where R is defined here as the sum of the ratios of the quantity of each isotope to the applicable value in Appendix B to Section 3.

~~2.~~ B. Each holder of, or applicant for, a specific license authorizing the possession and use of sealed sources or plated foils of half-life greater than 120 days and in quantities exceeding 10^{12} times the applicable quantities set forth in Appendix B to Section 3 (or when a combination of isotopes is involved if R, as defined in RH-409.h.1.A., divided by 10^{12} is greater than 1) shall ~~either~~ submit a decommissioning funding plan as described in RH-409.h.5. The decommissioning funding plan must be submitted to the Department by July 1, 2016.~~:~~

C. Each applicant for a specific license authorizing the possession and use of more than 100 mCi of source material in a readily dispersible form shall submit a decommissioning funding plan as described in RH-409.h.5.

2. Each applicant for a specific license authorizing possession and use of radioactive material of half-life greater than 120 days and/or source material, in quantities specified in RH-409.h.4., shall either:

A. Submit a decommissioning funding plan as described in RH-409.h.5. ~~of this section~~. ~~The decommissioning funding plan must be submitted to the Department by December 2, 2007~~; or

B. Submit a certification that financial assurance for decommissioning has been provided in the amount prescribed by RH-409.h.4. ~~of this section~~ using one of the methods described in RH-409.h.6. ~~of this section~~. For an applicant, this certification may state that the appropriate assurance will be obtained after the application has been approved and the license issued but prior to the receipt of licensed material. ~~As part of the certification, a copy of the financial instrument obtained to satisfy the requirements of RH-409.h.6. of this section is to be submitted to the Department.~~ If the applicant defers execution of the financial instrument until after the license has been issued, a signed original of the financial instrument obtained to satisfy the requirements of RH-409.h.6. must be submitted to the Department before receipt of licensed material. If the applicant does not defer execution of the financial

instrument, the applicant shall submit to the Department, as part of the certification, a signed original of the financial instrument obtained to satisfy the requirements of RH-409.h.6.

3. A. Each holder of a specific license issued on or after July 27, 1993, which is of a type described in RH-409.h.1. or h.2. ~~of this section~~, shall provide financial assurance for decommissioning in accordance with the criteria set forth in ~~this section~~ RH-409.h.

B. Each holder of a specific license issued before July 27, 1993, and of a type described in RH-409.h.1. ~~of this section,~~ shall submit, on or before July 27, 1993, a decommissioning funding plan or a certification of financial assurance for decommissioning in an amount at least equal to $1,125,000 in accordance with the criteria set forth in ~~this section~~ RH-409.h. If the licensee submits the certification of financial assurance rather than a decommissioning funding plan at this time, the licensee shall include a decommissioning funding plan in any application for license renewal.

C. Each holder of a specific license issued before July 27, 1993, and of a type described in RH-409.h.2. ~~of this section~~ shall submit, on or before July 27, 1993, a ~~certification of financial assurance for decommissioning or a~~ decommissioning funding plan or a certification of financial assurance for decommissioning in accordance with the criteria set forth in ~~this section~~ RH-409.h.

D. If, in surveys made under RH-1300.a., residual radioactivity in the facility and environment, including the subsurface, is detected at levels that would, if left uncorrected, prevent the site from meeting the RH-1216. criteria for unrestricted use, the licensee must submit a decommissioning funding plan within one year of when the survey is completed.

RH-409.h. (Cont'd)

4. **Table of required amounts of financial assurance for decommissioning by quantity of material**.

Licensees required to submit the $1,125,000 amount must do so by December 2, 2006. Licensees required to submit the $113,000 or $225,000 amount must do so by June 2, 2007. Licensees having possession limits exceeding the upper bounds of this table must base financial assurance on a decommissioning funding plan.

Greater than 10^4 but less than or equal to 10^5 times the applicable quantities in Appendix B to Section 3 in unsealed form. (For a combination of isotopes, if R, as defined in RH-409.h.1.A., divided by 10^4 is greater than 1 but R divided by 10^5 is less than or equal to 1) ……..…… $1,125,000

Greater than 10^3 but less than or equal to 10^4 times the applicable quantities in Appendix B to Section 3 in unsealed form. (For a combination of isotopes, if R, as defined in RH-409.h.1.A., divided by 10^3 is greater than 1 but R divided by 10^4 is less than or equal to 1) …… $225,000

Greater than 10^{10} but less than or equal to 10^{12} times the applicable quantities in Appendix B to Section 3 in sealed sources or plated foils. (For a combination of isotopes, if R, as defined in RH-409.h.1.A., divided by 10^{10} is greater than 1, but R divided by 10^{12} is less than or equal to 1) …… $113,000

Greater than 10 mCi but less than or equal to 100 mCi of source material in a readily dispersible form……..……$225,000

5. ~~Each decommissioning funding plan must contain a cost estimate for decommissioning and a description of the method of assuring funds for decommissioning from RH-409.h.6., including means for adjusting cost estimates and associated funding levels periodically over the life of the facility. Cost estimates must be adjusted at intervals not to exceed three (3) years. The decommissioning funding plan must also contain a certification by the licensee that financial assurance for decommissioning has been provided in the amount of the cost estimate for decommissioning and a signed original of the financial instrument obtained to satisfy the requirements of RH-409.h.6.~~

A. Each decommissioning funding plan must be submitted for review and approval and must contain:

i. A detailed cost estimate for decommissioning, in an amount reflecting:

(a). The cost of an independent contractor to perform all decommissioning activities;

(b). The cost of meeting the RH-1216. criteria for unrestricted use, provided that, if the

applicant or licensee can demonstrate its ability to meet the provisions of RH-1217., the cost estimate may be based on meeting the RH-1217. criteria;

(c). The volume of onsite subsurface material containing residual radioactivity that will require remediation to meet the criteria for license termination; and

(d). An adequate contingency factor.

ii. Identification of and justification for using the key assumptions contained in the DCE;

iii. A description of the method of assuring funds for decommissioning from RH-409.h.6., including means for adjusting cost estimates and associated funding levels periodically over the life of the facility;

iv. A certification by the licensee that financial assurance for decommissioning has been provided in the amount of the cost estimate for decommissioning; and

v. A signed original of the financial instrument obtained to satisfy the requirements of RH-409.h.6. (unless a previously submitted and accepted financial instrument continues to cover the cost estimate for decommissioning).

B. At the time of license renewal and at intervals not to exceed 3 years, the decommissioning funding plan must be resubmitted with adjustments as necessary to account for changes in costs and the extent of contamination. If the amount of financial assurance will be adjusted downward, this can not be done until the updated decommissioning funding plan is approved. The decommissioning funding plan must update the information submitted with the original or prior approved plan, and must specifically consider the effect of the following events on decommissioning costs:

i. Spills of radioactive material producing additional residual radioactivity in onsite subsurface material;

ii. Waste inventory increasing above the amount previously estimated;

iii. Waste disposal costs increasing above the amount previously estimated;

iv. Facility modifications;

v. Changes in authorized possession limits;

vi. Actual remediation costs that exceed the previous cost estimate;

vii. Onsite disposal; and

viii. Use of a settling pond.

RH-409.h. (Cont'd)

6. The financial instrument must include the licensee's name, license number, and the name, address, and other contact information of the issuer, and, if a trust is used, the trustee. When any of the foregoing information changes, the licensee must, within 30 days, submit financial instruments reflecting such changes. The financial instrument submitted must be a signed original or signed original duplicate, except where a copy of the signed original is specifically permitted. Financial assurance for decommissioning must be provided by one or more of the following methods:

A. **Prepayment**.

Prepayment is the deposit prior to the start of operation into an account segregated from licensee assets and outside the licensee's administrative control of cash or liquid assets such that the amount of funds would be sufficient to pay decommissioning costs. Prepayment ~~may~~ must be made ~~in the form of~~ into a trust account, ~~escrow account, government fund, certificate of deposit, or deposit of government securities~~ and the trustee and the trust must be acceptable to the Department.

B. **A surety method, insurance, or other guarantee method**.

These methods guarantee that decommissioning costs will be paid. A surety method may be in the form of a surety bond, or letter of credit~~, or line of credit~~. A parent company guarantee of funds for decommissioning costs based on a financial test may be used if the guarantee and test are as contained in Appendix A to Section 2. ~~A parent~~

~~company guarantee may not be used in combination with other financial methods to satisfy the requirements of this section.~~

For commercial corporations that issue bonds, a guarantee of funds by the applicant or licensee for decommissioning costs based on a financial test may be used if the guarantee and test are as contained in Appendix B to Section 2. For commercial corporations that do not issue bonds, a guarantee of funds by the applicant or licensee for decommissioning costs may be used if the guarantee and test are as contained in Appendix C to Section 2. For nonprofit entities, such as colleges, universities, and nonprofit hospitals, a guarantee of funds by the applicant or licensee may be used if the guarantee and test are as contained in Appendix D to Section 2.

~~A guarantee of funds by the applicant or licensee for decommissioning costs based on a financial test may be used if the guarantee and test are contained in Appendix B to Section 2.~~ Except for an external sinking fund, ~~A~~ a parent company guarantee or a guarantee by the applicant or licensee may not be used in combination with any other financial methods to satisfy the requirements of ~~this section~~ RH-409.h. ~~or~~ A guarantee by the applicant or licensee may not be used in any situation where the applicant or licensee has a parent company holding majority control of the voting stock of the company. Any surety method or insurance used to provide financial assurance for decommissioning must contain the following conditions:

i. The surety method or insurance must be open-ended or, if written for a specified term, such as five (5) years, must be renewed automatically unless ninety (90) days or more prior to the renewal date, the issuer notifies the Department, the beneficiary, and the licensee of its intention not to renew. The surety method or insurance must also provide that the full face amount be paid to the beneficiary automatically prior to the expiration without proof of forfeiture if the licensee fails to provide a replacement acceptable to the Department within thirty (30) days after receipt of notification of cancellation.

ii. The surety method or insurance must be payable to a trust established for decommissioning costs. The trustee and trust must be acceptable to the Department. An acceptable trustee includes an

appropriate State or Federal government agency or an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a Federal or State agency.

iii. The surety method or insurance must remain in effect until the Department has terminated the license.

RH-409.h. (Cont'd)

C. **An external sinking fund in which deposits are made at least annually, coupled with a surety method, ~~or~~ insurance, or other guarantee method, the value of which may decrease by the amount being accumulated in the sinking fund**.

An external sinking fund is a fund established and maintained by setting aside funds periodically in an account segregated from licensee assets and outside the licensee's administrative control in which the total amount of funds would be sufficient to pay decommissioning costs at the time termination of operation is expected.

An external sinking fund ~~may~~ must be in the form of a trust, ~~escrow account, government fund, certificate of deposit, or deposit of government securities~~. If the other guarantee method is used, no surety or insurance may be combined with the external sinking fund. The surety, ~~or~~ insurance, or other guarantee provisions must be as stated in RH-409.h.6.B.

D. In the case of State or local government licensees, a statement of intent containing a cost estimate for decommissioning or an amount based on the ~~T~~table in RH-409.h.4. ~~of this section~~, and indicating that funds for decommissioning will be obtained when necessary.

E. When a governmental ~~al~~ entity is assuming custody and ownership of a site, an arrangement that is deemed acceptable by such governmental ~~al~~ entity.

RH-409.h. (Cont'd)

7. Each person licensed under ~~Section 2~~ these Regulations shall keep records of information important to decommissioning of the facility in an identified location until the site is released for unrestricted use. Before licensed activities are transferred or assigned in accordance with RH-409.b., licensees shall transfer all

records described in this paragraph to the new licensee. In this case, the new licensee will be responsible for maintaining these records until the license is terminated.

If records important to the decommissioning of a facility are kept for other purposes, reference to these records and their locations may be used. Information the Department considers important to decommissioning consists of:

A. Records of spills or other unusual occurrences involving the spread of contamination in and around the facility, equipment, or site. These records may be limited to instances when contamination remains after any cleanup procedures or when there is reasonable likelihood that contaminants may have spread to inaccessible areas as in the case of possible seepage into porous materials such as concrete. These records must include any known information on identification of involved nuclides, quantities, forms, and concentrations.

B. As-built drawings and modifications of structures and equipment in restricted areas where radioactive materials are used and/or stored, and of locations of possible inaccessible contamination such as buried pipes which may be subject to contamination. If required drawings are referenced, each relevant document need not be indexed individually. If drawings are not available, the licensee shall substitute appropriate records of available information concerning these areas and locations.

RH-409.h. (Cont'd)

C. Except for areas containing only sealed sources (provided the sources have not leaked and no contamination remains after any leak) or radioactive materials having only half-lives of less than sixty-five (65) days <u>or depleted uranium used only for shielding or as penetrators in unused munitions</u>, a list contained in a single document and updated every two (2) years, consisting of the following:

i. All areas designated and formerly designated restricted areas as defined in RH-1100.;

ii. All areas outside of restricted areas that require documentation under RH-409.h.7.A.;

iii. All areas outside of restricted areas where current and previous wastes have been buried as documented under RH-1500.h.;

iv. All areas outside of restricted areas which contain material such that, if the license expired, the licensee would be required to either decontaminate the area to meet the criteria for decommissioning in ~~RH-410.~~ RH-1215. through RH-1220 or apply for approval for disposal under RH-1401.

D. Records of the cost estimate performed for the decommissioning funding plan or of the amount certified for decommissioning, and records of the funding method used for assuring funds if either a funding plan or certification is used.

8. In providing financial assurance under RH-409.h., each licensee must use the financial assurance funds only for decommissioning activities and each licensee must monitor the balance of funds held to account for market variations. The licensee must replenish the funds, and report such actions to the Department, as follows:

A. If, at the end of a calendar quarter, the fund balance is below the amount necessary to cover the cost of decommissioning, but is not below seventy-five percent (75%) of the cost, the licensee must increase the balance to cover the cost, and must do so within 30 days after the end of the calendar quarter.

B. If, at any time, the fund balance falls below seventy-five percent (75%) of the amount necessary to cover the cost of decommissioning, the licensee must increase the balance to cover the cost, and must do so within 30 days of the occurrence.

C. Within 30 days of taking the actions required by RH-409.h.8.A. or RH-409.h.8.B., the licensee must provide a written report of such actions to the Department, and state the new balance of the fund.

RH-412. **Amendment of Licenses and Sealed Source and Device Registration Certificates ~~at Request of Licensee~~**.

Applications for amendment of a license shall be filed in accordance with ~~Part D,~~ RH-403. and shall specify the respects in which the licensee desires his license to be amended and the grounds for ~~such~~ the amendment. Applications for amendment of sealed source and device registration certificates shall be filed in accordance with 10 CFR 32.210 and any other applicable provisions and shall specify the respects in which the certificate holder desires his certificate to be amended and the grounds for the amendment.

RH-413. **Department Action on Application to Renew or Amend**.

In considering an application ~~by a licensee~~ to renew or amend ~~his~~ a license or to amend a sealed source and device registration certificate, the Department will apply the applicable criteria set forth in RH-404., RH-405., and RH-406. and in Sections 2, 3, 4, 5, 6, 7, 8, and 9 of these Regulations~~, as applicable~~.

RH-414. ~~**Inalienability of Licenses**.~~

~~No license issued or granted under these Regulations and no right to possess or utilize radioactive material granted by any license issued pursuant to these Regulations shall be transferred, assigned or in any manner disposed of either voluntarily or involuntarily, directly or indirectly, through transfer of control of any license to any person unless the Department shall, after securing full information, find that the transfer is in accordance with the provisions of the Act and shall give its consent in writing.~~
Deleted. See RH-409.b.

RH-416. **Modification, Revocation and Termination of Licenses**.

a. The terms and conditions of ~~all~~ each license~~s~~ and sealed source and device registration certificate issued under these Regulations shall be subject to amendment, revision, or modification or the license may be suspended or revoked by reason of amendments to the Act or by reason of rules, regulations, and orders issued by the Department.

b. Any license or sealed source and device registration certificate may be revoked, suspended, or modified, in whole or in part, for any material false statement in the application or in any statement of fact required under provisions of the Act or of these Regulations or because of conditions revealed by such application or statement of fact or any report, record, or inspection or other means ~~which~~ that would warrant the Department to refuse to grant a license or sealed source and device registration certificate on an original application, or for violation of, or failure to observe any of the terms and conditions of the Act or the license or of any rule, regulation, or order of the Department.

c. Except in cases of willful violation or those in which the public health, interest, or safety requires otherwise, no license or sealed source and device registration certificate shall be modified, suspended, or revoked unless, prior to the institution of proceedings therefor, facts or conduct ~~which~~ that may warrant such action shall have been called to the attention of the licensee or certificate holder in writing, and the licensee or certificate holder shall have been accorded opportunity to demonstrate or achieve compliance with all lawful requirements.

d. The Department may terminate a specific license upon request submitted by the licensee to the Department in writing.

PART I.
SCHEDULES

RH-900. Schedule A to Section 2. Deleted. ~~See RH-402.l. and RH-402.m.~~

RH-901. **SCHEDULE B TO SECTION 2**

EXEMPT QUANTITIES

Radioactive Material	Micro-curies	Radioactive Material	Micro-curies
Antimony-122 (Sb-122)	100	Europium-154 (Eu-154)	1
Antimony-124 (Sb-124)	10	Europium-155 (Eu-155)	10
Antimony-125 (Sb-125)	10	Fluorine-18 (F-18)	1,000
Arsenic-73 (As-73)	100	Gadolinium-153 (Gd-153)	10
Arsenic-74 (As-74)	10	Gadolinium-159 (Gd-159)	100
Arsenic-76 (As-76)	10	Gallium-67 (Ga-67)	100
Arsenic-77 (As-77)	100	Gallium-72 (Ga-72)	10
Barium-131 (Ba-131)	10	Germanium-68 (Ge-68)	10
Barium-133 (Ba-133)	10	Germanium-71 (Ge-71)	100
Barium-140 (Ba-140)	10	Gold-195 (Au-195)	10
Bismuth-210 (Bi-210)	1	Gold-198 (Au-198)	100
Bromine-82 (Br-82)	10	Gold-199 (Au-199)	100
Cadmium-109 (Cd-109)	10	Hafnium-181 (Hf-181)	10
Cadmium-115m (Cd-115m)	10	Holmium-166 (Ho-166)	100
Cadmium-115 (Cd-115)	100	Hydrogen-3 (H-3)	1,000
Calcium-45 (Ca-45)	10	Indium-111 (In-111)	100
Calcium-47 (Ca-47)	10	Indium-113m (In-113m)	100
Carbon-14 (C-14)	100	Indium-114m (In-114m)	10
Cerium-141 (Ce-141)	100	Indium-115m (In-115m)	100
Cerium-143 (Ce-143)	100	Indium-115 (In-115)	10
Cerium-144 (Ce-144)	1	Iodine-123 (I-123)	100
Cesium-129 (Cs-129)	100	Iodine-125 (I-125)	1
Cesium-131 (Cs-131)	1,000	Iodine-126 (I-126)	1
Cesium-134m (Cs-134m)	100	Iodine-129 (I-129)	0.1
Cesium-134 (Cs-134)	1	Iodine-131 (I-131)	1
Cesium-135 (Cs-135)	10	Iodine-132 (I-132)	10
Cesium-136 (Cs-136)	10	Iodine-133 (I-133)	1
Cesium-137 (Cs-137)	10	Iodine-134 (I-134)	10
Chlorine-36 (Cl-36)	10	Iodine-135 (I-135)	10
Chlorine-38 (Cl-38)	10	Iridium-192 (Ir-192)	10
Chromium-51 (Cr-51)	1,000	Iridium-194 (Ir-194)	100
Cobalt-57 (Co-57)	100	Iron-52 (Fe-52)	10
Cobalt-58m (Co-58m)	10	Iron-55 (Fe-55)	100
Cobalt-58 (Co-58)	10	Iron-59 (Fe-59)	10
Cobalt-60 (Co-60)	1	Krypton-85 (Kr-85)	100
Copper-64 (Cu-64)	100	Krypton-87 (Kr-87)	10
Dysprosium-165 (Dy-165)	10	Lanthanum-140 (La-140)	10
Dysprosium-166 (Dy-166)	100	Lutetium-177 (Lu-177)	100
Erbium-169 (Er-169)	100	Manganese-52 (Mn-52)	10
Erbium-171 (Er-171)	100	Manganese-54 (Mn-54)	10
Europium-152 (Eu-152) 9.2 h	100	Manganese-56 (Mn-56)	10
Europium-152 (Eu-152) 13 yr	1	Mercury-197m (Hg-197m)	100

RH-901. **SCHEDULE B TO SECTION 2**

EXEMPT QUANTITIES

Radioactive Material	Micro-curies	Radioactive Material	Micro-curies
Mercury-197 (Hg-197)	100	Samarium-153 (Sm-153)	100
Mercury-203 (Hg-203)	10	Scandium-46 (Sc-46)	10
Molybdenum-99 (Mo-99)	100	Scandium-47 (Sc-47)	100
Neodymium-147 (Nd-147)	100	Scandium-48 (Sc-48)	10
Neodymium-149 (Nd-149)	100	Selenium-75 (Se-75)	10
Nickel-59 (Ni-59)	100	Silicon-31 (Si-31)	100
Nickel-63 (Ni-63)	10	Silver-105 (Ag-105)	10
Nickel-65 (Ni-65)	100	Silver-110m (Ag-110m)	1
Niobium-93m (Nb-93m)	10	Silver-111 (Ag-111)	100
Niobium-95 (Nb-95)	10	Sodium-22 (Na-22)	10
Niobium-97 (Nb-97)	10	Sodium-24 (Na-24)	10
Osmium-185 (Os-185)	10	Strontium-85 (Sr-85)	10
Osmium-191m (Os-191m)	100	Strontium-89 (Sr-89)	1
Osmium-191 (Os-191)	100	Strontium-90 (Sr-90)	0.1
Osmium-193 (Os-193)	100	Strontium-91 (Sr-91)	10
Palladium-103 (Pd-103)	100	Strontium-92 (Sr-92)	10
Palladium-109 (Pd-109)	100	Sulphur-35 (S-35)	100
Phosphorus-32 (P-32)	10	Tantalum-182 (Ta-182)	10
Platinum-191 (Pt-191)	100	Technetium-96 (Tc-96)	10
Platinum-193m (Pt-193m)	100	Technetium-97m (Tc-97m)	100
Platinum-193 (Pt-193)	100	Technetium-97 (Tc-97)	100
Platinum-197m (Pt-197m)	100	Technetium-99m (Tc-99m)	100
Platinum-197 (Pt-197)	100	Technetium-99 (Tc-99)	10
Polonium-210 (Po-210)	0.1	Tellurium-125m (Te-125m)	10
Potassium-42 (K-42)	10	Tellurium-127m (Te-127m)	10
Potassium-43 (K-43)	10	Tellurium-127 (Te-127)	100
Praseodymium-142 (Pr-142)	100	Tellurium-129m (Te-129m)	10
Praseodymium-143 (Pr-143)	100	Tellurium-129 (Te-129)	100
Promethium-147 (Pm-147)	10	Tellurium-131m (Te-131m)	10
Promethium-149 (Pm-149)	10	Tellurium-132 (Te-132)	10
Rhenium-186 (Re-186)	100	Terbium-160 (Tb-160)	10
Rhenium-188 (Re-188)	100	Thallium-200 (Tl-200)	100
Rhodium-103m (Rh-103m)	100	Thallium-201 (Tl-201)	100
Rhodium-105 (Rh-105)	100	Thallium-202 (Tl-202)	100
Rubidium-81 (Rh-81)	10	Thallium-204 (Tl-204)	10
Rubidium-86 (Rb-86)	10	Thulium-170 (Tm-170)	10
Rubidium-87 (Rb-87)	10	Thulium-171 (Tm-171)	10
Ruthenium-97 (Ru-97)	100	Tin-113 (Sn-113)	10
Ruthenium-103 (Ru-103)	10	Tin-125 (Sn-125)	10
Ruthenium-105 (Ru-105)	10	Tungsten-181 (W-181)	10
Ruthenium-106 (Ru-106)	1	Tungsten-185 (W-185)	10
Samarium-151 (Sm-151)	10	Tungsten-187 (W-187)	100

RH-901. **SCHEDULE B TO SECTION 2**

EXEMPT QUANTITIES

Radioactive Material	Micro-curies	Radioactive Material	Micro-curies
Vanadium-48 (V-48)	10		
Xenon-131m (Xe-131m)	1,000		
Xenon-133 (Xe-133)	100		
Xenon-135 (Xe-135)	100		
Ytterbium-175 (Yb-175)	100		
Yttrium-87 (Y-87)	10		
Yttrium-88 (Y-88)	10		
Yttrium-90 (Y-90)	10		
Yttrium-91 (Y-91)	10		
Yttrium-92 (Y-92)	100		
Yttrium-93 (Y-93)	100		
Zinc-65 (Zn-65)	10		
Zinc-69m (Zn-69m)	100		
Zinc-69 (Zn-69)	1,000		
Zirconium-93 (Zr-93)	10		
Zirconium-95 (Zr-95)	10		
Zirconium-97 (Zr-97)	10		
~~Alpha emitting radioactive material not listed above~~	~~0.01~~		
Any radioactive material not listed above, other than alpha emitting radioactive material	0.1		

~~Note: For purposes of RH-305.a., where there is involved a combination of isotopes, the limit for the combination should be derived as follows:~~

~~Determine the amount of each isotope possessed and 1,000 times the amount in Schedule B for each of those isotopes when not in combination. The sum of the ratios of those quantities may not exceed 1.~~

~~Example:~~

$$\frac{\text{Amt. of Isotope A possessed}}{1000 \times \text{Schedule B quantity for Isotope A}} + \frac{\text{Amt. of Isotope B possessed}}{1000 \times \text{Schedule B quantity for Isotope B}} < 1$$

RH-902.

SCHEDULE C TO SECTION 2
EXEMPT CONCENTRATIONS

Element (atomic number)	**Isotope**	Column I **Gas concentration** µCi/ml[12/]	Column II **Liquid and solid concentration** µCi/ml[13/]
Antimony (51)	Sb-122	----------	3×10^{-4}
	Sb-124	----------	2×10^{-4}
	Sb-125	----------	1×10^{-3}
Argon (18)	A-37	1×10^{-3}	----------
	A-41	4×10^{-7}	----------
Arsenic (33)	As-73	----------	5×10^{-3}
	As-74	----------	5×10^{-4}
	As-76	----------	2×10^{-4}
	As-77	----------	8×10^{-4}
Barium (56)	Ba-131	----------	2×10^{-3}
	Ba-140	----------	3×10^{-4}
Beryllium (4)	Be-7	----------	2×10^{-2}
Bismuth (83)	Bi-206	----------	4×10^{-4}
Bromine (35)	Br-82	4×10^{-7}	3×10^{-3}
Cadmium (48)	Cd-109	----------	2×10^{-3}
	Cd-115m	----------	3×10^{-4}
	Cd-115	----------	3×10^{-4}
Calcium (20)	Ca-45	----------	9×10^{-5}
	Ca-47	----------	5×10^{-4}
Carbon (6)	C-14	1×10^{-6}	8×10^{-3}
Cerium (58)	Ce-141	----------	9×10^{-4}
	Ce-143	----------	4×10^{-4}
	Ce-144	----------	1×10^{-4}
Cesium (55)	Cs-131	----------	2×10^{-2}
	Cs-134m	----------	6×10^{-2}
	Cs-134	----------	9×10^{-5}
Chlorine (17)	Cl-38	9×10^{-7}	4×10^{-3}
Chromium (24)	Cr-51	----------	2×10^{-2}
Cobalt (27)	Co-57	----------	5×10^{-3}
	Co-58	----------	1×10^{-3}
	Co-60	----------	5×10^{-4}
Copper (29)	Cu-64	----------	3×10^{-3}
Dysprosium (66)	Dy-165	----------	4×10^{-3}
	Dy-166	----------	4×10^{-4}
Erbium (68)	Er-169	----------	9×10^{-4}
	Er-171	----------	1×10^{-3}
Europium (63)	Eu-152	----------	6×10^{-4}
	(T/2=9.2 hrs)	----------	----------
	Eu-155	----------	2×10^{-3}
Fluorine (9)	F-18	2×10^{-6}	8×10^{-3}
Gadolinium (64)	Gd-153	----------	2×10^{-3}
	Gd-159	----------	8×10^{-4}
Gallium (31)	Ga-72	----------	4×10^{-4}
Germanium (32)	Ge-71	----------	2×10^{-2}

RH-902. **Schedule C to Section 2. Exempt Concentrations.** (Cont'd)

Element (atomic number)	**Isotope**	Column I **Gas concentration** µCi/ml[12/]	Column II **Liquid and solid concentration** µCi/ml[13/]
Gold (79)	Au-196	----------	2×10^{-3}
	Au-198	----------	5×10^{-4}
	Au-199	----------	2×10^{-3}
Hafnium (72)	Hf-181	----------	7×10^{-4}
Hydrogen (1)	H-3	5×10^{-6}	3×10^{-2}
Indium (49)	In-113m	----------	1×10^{-2}
	In-114m	----------	2×10^{-4}
Iodine (53)	I-126	3×10^{-9}	2×10^{-5}
	I-131	3×10^{-9}	2×10^{-5}
	I-132	8×10^{-8}	6×10^{-4}
	I-133	1×10^{-8}	7×10^{-5}
	I-134	2×10^{-7}	1×10^{-3}
Iridium (77)	Ir-190	----------	2×10^{-3}
	Ir-192	----------	4×10^{-4}
	Ir-194	----------	3×10^{-4}
Iron (26)	Fe-55	----------	8×10^{-3}
	Fe-59	----------	6×10^{-4}
Krypton (36)	Kr-85m	1×10^{-6}	----------
	Kr-85	3×10^{-6}	----------
Lanthanum (57)	La-140	----------	2×10^{-4}
Lead (82)	Pb-203	----------	4×10^{-3}
Lutetium (71)	Lu-177	----------	1×10^{-3}
Manganese (25)	Mn-52	----------	3×10^{-4}
	Mn-54	----------	1×10^{-3}
	Mn-56	----------	1×10^{-3}
Mercury (80)	Hg-197m	----------	2×10^{-3}
	Hg-197	----------	3×10^{-3}
	Hg-203	----------	2×10^{-4}
Molybdenum (42)	Mo-99	----------	2×10^{-3}
Neodymium (60)	Nd-147	----------	6×10^{-4}
	Nd-149	----------	3×10^{-3}
Nickel (28)	Ni-65	----------	1×10^{-3}
Niobium (Columbium)(41)	Nb-95	----------	1×10^{-3}
	Nb-97	----------	9×10^{-3}
Osmium (76)	Os-185	----------	7×10^{-4}
	Os-191m	----------	3×10^{-2}
	Os-191	----------	2×10^{-3}
	Os-193	----------	6×10^{-4}
Palladium (46)	Pd-103	----------	3×10^{-3}
	Pd-109	----------	9×10^{-4}
Phosphorus (15)	P-32	----------	2×10^{-4}

RH-902. **Schedule C to Section 2. Exempt Concentrations.** (Cont'd)

Element (atomic number)	**Isotope**	Column I **Gas concentration** µCi/ml[12/]	Column II **Liquid and solid concentration** µCi/ml[13/]
Platinum (78)	Pt-191	----------	1×10^{-3}
	Pt-193m	----------	1×10^{-2}
	Pt-197m	----------	1×10^{-2}
	Pt-197	----------	1×10^{-3}
~~Polonium (84)~~	~~Po 210~~	~~----------~~	~~7×10^{-6}~~
Potassium (19)	K-42	----------	3×10^{-3}
Praseodymium (50)	Pr-142	----------	3×10^{-4}
	Pr-143	----------	5×10^{-4}
Promethium (61)	Pm-147	----------	2×10^{-3}
	Pm-149	----------	4×10^{-4}
~~Radium (88)~~	~~Ra-226~~	~~----------~~	~~1×10^{-7}~~
	~~Ra-228~~	~~----------~~	~~3×10^{-7}~~
Rhenium (75)	Re-183	----------	6×10^{-3}
	Re-186	----------	9×10^{-4}
	Re-188	----------	6×10^{-4}
Rhodium (45)	Rh-103m	----------	1×10^{-1}
	Rh-105	----------	1×10^{-3}
Rubidium (37)	Rb-86	----------	7×10^{-4}
Ruthenium (44)	Ru-97	----------	4×10^{-3}~~4~~
	Ru-103	----------	8×10^{-4}
	Ru-105	----------	1×10^{-3}
	Ru-106	----------	1×10^{-4}
Samarium (62)	Sm-153	----------	8×10^{-4}
Scandium (21)	Sc-46	----------	4×10^{-4}
	Sc-47	----------	9×10^{-4}
	Sc-48	----------	3×10^{-4}
Selenium (34)	Se-75	----------	3×10^{-3}
Silicon (14)	Si-31	----------	9×10^{-3}
Silver (47)	Ag-105	----------	1×10^{-3}
	Ag-110m	----------	3×10^{-4}
	Ag-111	----------	4×10^{-4}
Sodium (11)	Na-24	----------	2×10^{-3}
Strontium (38)	Sr-85	----------	1×10^{-3}~~4~~
	Sr-89	----------	1×10^{-4}
	Sr-91	----------	7×10^{-4}
	Sr-92	----------	7×10^{-4}
Sulfur (16)	S-35	9×10^{-8}	6×10^{-4}
Tantalum (73)	Ta-182	----------	4×10^{-4}
Technetium (43)	Tc-96m	----------	1×10^{-1}
	Tc-96	----------	1×10^{-3}

RH-902. **Schedule C to Section 2. Exempt Concentrations.** (Cont'd)

Element (atomic number)	**Isotope**	Column I **Gas concentration** µCi/ml[12/]	Column II **Liquid and solid concentration** µCi/ml[13/]
Tellurium (52)	Te-125m	----------	2×10^{-3}
	Te-127m	----------	6×10^{-4}
	Te-127	----------	3×10^{-3}
	Te-129m	----------	3×10^{-4}
	Te-131m	----------	6×10^{-4}
	Te-132	----------	3×10^{-4}
Terbium (65)	Tb-160	----------	4×10^{-4}
Thallium (81)	Tl-200	----------	4×10^{-3}
	Tl-201	----------	3×10^{-3}
	Tl-202	----------	1×10^{-3}
	Tl-204	----------	1×10^{-3}
Thulium (69)	Tm-170	----------	5×10^{-4}
	Tm-171	----------	5×10^{-3}
Tin (50)	Sn-113	----------	9×10^{-4}
	Sn-125	----------	2×10^{-4}
Tungsten (Wolfram)(74)	W-181	----------	4×10^{-3}
	W-187	----------	7×10^{-4}
Vanadium (23)	V-48	----------	3×10^{-4}
Xenon (54)	Xe-131m	4×10^{-6}	----------
	Xe-133	3×10^{-6}	----------
	Xe-135	1×10^{-6}	----------
Ytterbium (~~80~~70)	Yb-175	----------	1×10^{-3}
Yttrium (~~30~~39)	Y-90	----------	2×10^{-4}
	Y-91m	----------	3×10^{-2}
	Y-91	----------	3×10^{-4}
	Y-92	----------	6×10^{-4}
	Y-~~83~~ 93	----------	3×10^{-4}
Zinc (30)	Zn-65	----------	1×10^{-3}
	Zn-69m	----------	7×10^{-4}
	Zn-69	----------	2×10^{-2}
Zirconium (40)	Zr-95	----------	6×10^{-4}
	Zr-97	----------	2×10^{-4}
Beta and/or gamma emitting radioactive material not listed above with half-life less than 3 years	--------	1×10^{-10}	1×10^{-6}

RH-902. **Schedule C to Section 2. Exempt Concentrations.** (Cont'd)

Notes :

1. Many radioisotopes disintegrate into isotopes which are also radioactive. In expressing the concentrations in Schedule C, the activity stated is that of the parent isotope and takes into account the daughters.

2. For purposes of RH-301.a. where there is involved a combination of isotopes, the limit for the combination should be derived as follows:

   Determine for each isotope in the product the ratio between the concentration present in the product and the exempt concentration established in Schedule C for the specific isotope when not in combination. The sum of such ratios may not exceed "1" (i.e., unity).

   Example:

$$\frac{\text{Concentration of Isotope A in Product}}{\text{Exempt concentration of Isotope A}} + \frac{\text{Concentration of Isotope B in Product}}{\text{Exempt concentration of Isotope B}} \leq 1$$

SCHEDULE F TO SECTION 2

QUANTITIES OF RADIOACTIVE MATERIALS REQUIRING CONSIDERATION OF THE NEED FOR AN EMERGENCY PLAN FOR RESPONDING TO A RELEASE

Radioactive material [15/] [16/]	Release Fraction	Quantity (Curies)
Actinium-228	0.001	4,000
Americium-241	.001	2
Americium-242	.001	2
Americium-243	.001	2
Antimony-124	.01	4,000
Antimony-126	.01	6,000
Barium-133	.01	10,000
Barium-140	.01	30,000
Bismuth-207	.01	5,000
Bismuth-210	.01	600
Cadmium-109	.01	1,000
Cadmium-113	.01	80
Calcium-45	.01	20,000
Californium-252	.001	9 (20 mg)
Carbon-14 (Non CO)	.01	50,000
Cerium-141	.01	10,000
Cerium-144	.01	300
Cesium-134	.01	2,000
Cesium-137	.01	3,000
Chlorine-36	.5	100
Chromium-51	.01	300,000
Cobalt-60	.001	5,000
Copper-64	.01	200,000
Curium-242	.001	60
Curium-243	.001	3
Curium-244	.001	4
Curium-245	.001	2
Europium-152	.01	500
Europium-154	.01	400
Europium-155	.01	3,000
Gadolinium-153	.01	5,000
Germanium-68	.01	2,000
Gold-198	.01	30,000
Hafnium-172	.01	400
Hafnium-181	.01	7,000
Holmium-166m	.01	100
Hydrogen-3	.5	20,000
Iodine-125	.5	10
Iodine-131	.5	10
Indium-114m	.01	1,000

RH-905. **SCHEDULE F TO SECTION 2** (Cont'd)

Radioactive material [15/] [16/]	Release Fraction	Quantity (Curies)
Iridium-192	.001	40,000
Iron-55	.01	40,000
Iron-59	.01	7,000
Krypton-85	1.0	6,000,000
Lead-210	.01	8
Maganese-56	.01	60,000
Mercury-203	.01	10,000
Molybdenum-99	.01	30,000
Neptunium-237	.001	2
Nickel-63	.01	20,000
Niobium-94	.01	300
Phosphorus-32	.5	100
Phosphorus-33	.5	1,000
Polonium-210	.01	10
Potassium-42	.01	9,000
Promethium-145	.01	4,000
Promethium-147	.01	4,000
Radium-226	.001	100
Ruthenium-106	.01	200
Samarium-151	.01	4,000
Scandium-46	.01	3,000
Selenium-75	.01	10,000
Silver-110m	.01	1,000
Sodium-22	.01	9,000
Sodium-24	.01	10,000
Strontium-89	.01	3,000
Strontium-90	.01	90
Sulfur-35	.5	900
Technetium-99	.01	10,000
Technetium-99m	.01	400,000
Tellurium-127m	.01	5,000
Tellurium-129m	.01	5,000
Terbium-160	.01	4,000
Thulium-170	.01	4,000
Tin-113	.01	10,000
Tin-123	.01	3,000
Tin-126	.01	1,000
Titanium-44	.01	100
Vanadium-48	.01	7,000
Xenon-133	1.0	900,000
Yttrium-91	.01	2,000
Zinc-65	.01	5,000
Zirconium-93	.01	400
Zirconium-95	.01	5,000

RH-905. **SCHEDULE F TO SECTION 2** (Cont'd)

Radioactive material [15/] [16/]	Release Fraction	Quantity (Curies)
Any other beta-gamma emitter	.01	10,000
Mixed fission products	.01	1,000
Mixed corrosion products	.01	10,000
Contaminated equipment, beta-gamma	.001	10,000
Irradiated material, any form other than solid noncombustible	.01	1,000
Irradiated material, solid noncombustible	.001	10,000
Mixed radioactive waste, beta-gamma	.01	1,000
Packaged mixed waste, beta-gamma [16/]	.001	10,000
Any other alpha emitter	.001	2
Contaminated equipment, alpha	.0001	20
Packaged waste, alpha [16/]	.0001	20
Combinations of radioactive materials listed above [15/]	----	----

APPENDIX A TO SECTION 2

CRITERIA RELATING TO USE OF FINANCIAL TESTS AND PARENT COMPANY GUARANTEES~~S~~ FOR PROVIDING REASONABLE ASSURANCE OF FUNDS FOR DECOMMISSIONING

I. Introduction

An applicant or licensee may provide reasonable assurance of the availability of funds for decommissioning based on obtaining a parent company guarantee that funds will be available for decommissioning costs and on a demonstration that the parent company passes a financial test. This appendix establishes criteria for passing the financial test and for obtaining the parent company guarantee.

II. Financial Test

A. To pass the financial test, the parent company must meet the criteria of either paragraph A.1. or A.2. of this section~~:~~. For purposes of applying the Appendix A criteria, tangible net worth must be calculated to exclude all intangible assets and the net book value of the nuclear facility and site, and total net worth, which may include intangible assets, must be calculated to exclude the net book value and goodwill of the nuclear facility and site.

1. The parent company must have:

   a. Two of the following three ratios: A ratio of total liabilities to total net worth less than 2.0; a ratio of the sum of net income plus depreciation, depletion, and amortization to total liabilities greater than 0.1; and a ratio of current assets to current liabilities greater than 1.5; and

   b. Net working capital and tangible net worth each at least six (6) times the amount of ~~current~~ decommissioning ~~cost estimates~~ funds being assured by a parent company guarantee for the total of all nuclear facilities or parts thereof (or prescribed amount if a certification is used); and

   c. Tangible net worth of at least $~~10~~ 21 million; and

   d. Assets located in the United States amounting to at least ninety percent (90%) of total assets or at least six (6) times the current decommissioning cost estimates for the total of all facilities or parts therof (or prescribed amount if a certificate is used).

2. The parent company must have:

a. A current rating for its most recent uninsured, uncollateralized, and unencumbered bond issuance of AAA, AA, A, or BBB (including adjustments of + and -), as issued by Standard and Poor's or Aaa, Aa, A or Baa (including adjustment of 1, 2, or 3) as issued by Moody's; and

Appendix A to Section 2. (Cont'd)

b. Tangible Total net worth at least six (6) times the current amount of decommissioning cost estimate funds being assured by a parent company guarantee for the total of all nuclear facilities or parts thereof (or prescribed amount if a certification is used); and

c. Tangible net worth of at least $10 21 million; and

d. Assets located in the United States amounting to at least ninety percent (90%) of the total assets or at least six (6) times the current decommissioning cost estimates for the total of all facilities or parts thereof (or prescribed amount if certification is used).

B. The parent company's independent certified public accountant must have compared the data used by the parent company in the financial test, which is derived from the independently audited, year-end financial statements for the latest fiscal year, with the amounts in such financial statement. The accountant must evaluate the parent company's off-balance sheet transactions and provide an opinion on whether those transactions could materially adversely affect the parent company's ability to pay for decommissioning costs. The accountant must verify that a bond rating, if used to demonstrate passage of the financial test, meets the requirements of paragraph A of this section. In connection with that the auditing procedure, the licensee shall inform the Department within ninety (90) days of any matters coming to the auditor's attention which cause the auditor to believe that the data specified in the financial test should be adjusted and that the company no longer passes the test.

C. 1. After the initial financial test, the parent company must repeat the passage of the test annually pass the test and provide documentation of its continued eligibility to use the parent company guarantee to the Department within ninety (90) days after the close of each succeeding fiscal year.

2. If the parent company no longer meets the requirements of paragraph A. of this Appendix, the licensee must send notice to the Department of intent to establish alternate financial assurance as specified in the Department's regulations. The notice must be sent by certified mail within ninety (90) days after the end of the fiscal year for which the yearend financial data show that the parent company no longer meets the financial test requirements. The licensee must provide alternate financial assurance within 120 days after the end of such fiscal year.

Appendix A to Section 2. (Cont'd)

III. **Parent Company Guarantee**

The terms of a parent company guarantee which an applicant or licensee obtains must provide that:

A. The parent company guarantee will remain in force unless the guarantor sends notice of cancellation by certified mail to the licensee and the Department. Cancellation may not occur, however, during the 120 days beginning on the date of receipt of the notice of cancellation by both the licensee and the Department, as evidenced by the return receipts.

B. If the licensee fails to provide alternate financial assurance as specified in the Department's regulations within ninety (90) days after receipt by the licensee and Department of a notice of cancellation of the parent company guarantee from the guarantor, the guarantor will provide ~~such~~ alternative financial assurance that meets the provisions of the Department's regulations in the name of the licensee.

C. The parent company guarantee and financial test provisions must remain in effect until the Department has terminated the license~~.~~, accepted in writing the parent company's alternate financial assurances, or accepted in writing the licensee's financial assurances.

D. ~~If a trust is established for decommissioning costs,~~ A standby trust to protect public health and safety and the environment must be established for decommissioning costs before the parent company guarantee agreement is submitted. ~~t~~The trustee and trust must be acceptable to the Department. An acceptable trustee includes an appropriate State or Federal Government agency or an entity which has the authority to act as a trustee, ~~and~~ whose trust operations are regulated and examined by a Federal or State agency. The Department has the right to change the trustee. An acceptable trust will meet the regulatory criteria established in these Regulations that govern the issuance of the license for which the guarantor has accepted the obligation to pay for decommissioning costs.

E. The guarantor must agree that it would be subject to Department orders to make payments under the guarantee agreement.

F. The guarantor must agree that if the guarantor admits in writing its inability to pay its debts generally, or makes a general assignment for the benefit of creditors, or any proceeding is instituted by or against the guarantor seeking to adjudicate it as bankrupt or insolvent, or seeking dissolution, liquidation, winding-up, reorganization, arrangement, adjustment, protection, relief or composition of it or its debts under any law relating to bankruptcy, insolvency, or reorganization or relief of debtors, or seeking the entry of an order for relief or the appointment of a receiver, trustee, custodian, or other similar official for the guarantor or for any substantial part of its property, or the guarantor takes any action to authorize or effect any of the actions stated in this paragraph, then the Department may:

1. Declare that the financial assurance guaranteed by the parent company guarantee agreement is immediately due and payable to the standby trust set up to protect the public health and safety and the environment, without diligence, presentment, demand, protest or any other notice of any kind, all of which are expressly waived by guarantor; and

2. Exercise any and all of its other rights under applicable law.

G. 1. The guarantor must agree to notify the Department, in writing, immediately following the filing of a voluntary or involuntary petition for bankruptcy under any chapter of title 11 (Bankruptcy) of the United States Code, or the occurrence of any other event listed in paragraph F of this section, by or against:

a. The guarantor;

b. The licensee;

c. An entity (as that term is defined in 11 U.S.C. 101(15)) controlling the licensee or listing the license or licensee as property of the estate; or

d. An affiliate (as that term is defined in 11 U.S.C. 101(2)) of the licensee.

2. This notification must include:

a. A description of the event, including major creditors, the amounts involved, and the actions taken to assure that the amount of funds guaranteed by the parent company guarantee for decommissioning will be transferred to the standby trust as soon as possible;

b. If a petition of bankruptcy was filed, the identity of the bankruptcy court in which the petition for bankruptcy was filed; and

c. The date of filing of any petitions.

APPENDIX B TO SECTION 2

CRITERIA RELATING TO USE OF FINANCIAL TESTS AND SELF GUARANTEES FOR PROVIDING REASONABLE ASSURANCE OF FUNDS FOR DECOMMISSIONING

I. Introduction

An applicant or licensee may provide reasonable assurance of the availability of funds for decommissioning based on furnishing its own guarantee that funds will be available for decommissioning costs and on a demonstration that the company passes ~~a~~ the financial test of Section II of this Appendix. The terms of the self-guarantee are in Section III of this Appendix. This Appendix establishes criteria for passing the financial test for the self-guarantee and establishes the terms for a self-guarantee.

II. Financial Test

A. To pass the financial test, a company must meet all of the ~~following~~ criteria set forth in this section.~~:~~ For purposes of applying the Appendix B criteria, tangible net worth must be calculated to exclude all intangible assets and the net book value of the nuclear facility and site, and total net worth, which may include intangible assets, must be calculated to exclude the net book value and goodwill of the nuclear facility and site. These criteria include:

1. Tangible net worth of at least $21 million, and total net worth at least ten (10) times the ~~total current~~ amount of decommissioning ~~cost estimate~~ funds being assured by a self-guarantee ~~(or the current amount required if certification is used)~~ for all decommissioning activities for which the company is responsible as self-guaranteeing licensee and as parent-guarantor for the total

of all nuclear facilities or parts thereof (or the current amount required if certification is used).

2. Assets located in the United States amounting to at least ninety percent (90%) of total assets or at least ten (10) times the ~~total current~~ amount of decommissioning ~~cost estimate~~ funds being assured by a self-guarantee, ~~(or prescribed amount required if certification is used)~~ for all decommissioning activities for which the company is responsible as self-guaranteeing licensee and as parent-guarantor for the total of all nuclear facilities or parts thereof (or the current amount required if certification is used).

3. A current rating for its most recent uninsured, uncollateralized, and unencumbered bond issuance of AAA, AA, or A (including adjustments of + and -) as issued by Standard and Poor's ~~(S&P)~~, or Aaa, Aa, or A (including adjustments of 1, 2, or 3) as issued by Moody's.

Appendix B to Section 2. (Cont'd)

B. To pass the financial test, a company must meet all of the following additional requirements:

1. The company must have at least one class of equity securities registered under the Securities Exchange Act of 1934.

2. The company's independent certified public accountant must ~~have~~ compare~~d~~ the data used by the company in the financial test, which is derived from the independently audited, year-end financial statements for the latest fiscal year, with the amounts in such financial statement. The accountant must evaluate the company's off-balance sheet transactions and provide an opinion on whether those transactions could materially adversely affect the company's ability to pay for decommissioning costs. The accountant must verify that a bond rating, if used to demonstrate passage of the financial test, meets the requirements of Section II, paragraph A of this Appendix. In connection with ~~that~~ the auditing procedure, the licensee shall inform the Department within ninety (90) days of any matters coming to the auditor's attention which cause the auditor to believe that the data specified in the financial test should be adjusted and that the company no longer passes the test.

3. After the initial financial test, the company must ~~repeat the passage of the test~~ annually pass the test and provide documentation of its continued eligibility to use the self-guarantee to the Department

within ninety (90) days after the close of each succeeding fiscal year.

C. If the licensee no longer meets the requirements of Section II.A of this Appendix ~~B to Section 2~~, the licensee must send immediate notice to the Department of its intent to establish alternate financial assurance as specified in the Department's regulations within 120 days of such notice.

III. **Company Self-Guarantee**

The terms of a self-guarantee which an applicant or licensee ~~obtains~~ furnishes must provide that:

A. The guarantee will remain in force unless the licensee sends notice of cancellation by certified mail to the Department. Cancellation may not occur, however, during the 120 days beginning on the date of receipt of the notice of cancellation by the Department, as evidenced by the return receipt.

B. The licensee shall provide alternate financial assurance as specified in the Department's regulations within ninety (90) days following receipt by the Department of a notice of cancellation of the guarantee.

C. The guarantee and financial test provisions must remain in effect until the Department has terminated the license or until another financial assurance method acceptable to the Department has been put in effect by the licensee.

Appendix B to Section 2. (Cont'd)

D. The licensee will promptly forward to the Department and the licensee's independent auditor all reports covering the latest fiscal year filed by the licensee with the Securities and Exchange Commission pursuant to the requirements of section 13 of the Securities and Exchange Act of 1934.

E. 1. If, at any time, the licensee's most recent bond issuance~~s~~ ceases to be rated in any category of "A" or above by either Standard and Poor's or in any category of "A3" and above by Moody's, the licensee will ~~provide notice~~ notify the Department in writing ~~of such fact to the Department~~ within twenty (20) days after publication of the change by the rating service.

2. If the licensee's most recent bond issuance ceases to be rated in any category of A or above by both Standard and Poor and Moody's, the licensee no longer meets the requirements of Section II.A of this Appendix ~~B to Section 2~~.

F. The applicant or licensee must provide to the Department a written guarantee (a written commitment by a corporate officer) which states that the licensee will fund and carry out the required decommissioning activities or, upon issuance of an order by the Department, the licensee will set up and fund a trust in the amount ~~of the current cost estimates for decommissioning~~ guaranteed by the self-guarantee agreement.

G. 1. A standby trust to protect public health and safety and the environment must be established for decommissioning costs before the self-guarantee agreement is submitted.

2. The trustee and trust must be acceptable to the Department. An acceptable trustee includes an appropriate State or Federal Government agency or an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a Federal or State agency. The Department has the right to change the trustee. An acceptable trust will meet the regulatory criteria established in these Regulations that govern the issuance of the license for which the guarantor has accepted the obligation to pay for decommissioning costs.

H. The guarantor must agree that if the guarantor admits in writing its inability to pay its debts generally, or makes a general assignment for the benefit of creditors, or any proceeding is instituted by or against the guarantor seeking to adjudicate it as bankrupt or insolvent, or seeking dissolution, liquidation, winding-up, reorganization, arrangement, adjustment, protection, relief or composition of it or its debts under any law relating to bankruptcy, insolvency, or reorganization or relief of debtors, or seeking the entry of an order for relief or the appointment of a receiver, trustee, custodian, or other similar official for the guarantor or for any substantial part of its property, or the guarantor takes any action to authorize or effect any of the actions stated in this paragraph, then the Department may:

1. Declare that the financial assurance guaranteed by the self-guarantee agreement is immediately due and payable to the standby trust set up to protect the public health and safety and the environment, without diligence, presentment, demand, protest or any other notice of any kind, all of which are expressly waived by guarantor; and

2. Exercise any and all of its other rights under applicable law.

I. The guarantor must notify the Department, in writing, immediately following the occurrence of any event listed in paragraph H of this section,

and must include a description of the event, including major creditors, the amounts involved, and the actions taken to assure that the amount of funds guaranteed by the self-guarantee agreement for decommissioning will be transferred to the standby trust as soon as possible.

APPENDIX C TO SECTION 2

CRITERIA RELATING TO USE OF FINANCIAL TESTS AND SELF GUARANTEES FOR PROVIDING REASONABLE ASSURANCE OF FUNDS FOR DECOMMISSIONING BY COMMERCIAL COMPANIES THAT HAVE NO OUTSTANDING RATED BONDS

I. Introduction

An applicant or licensee may provide reasonable assurance of the availability of funds for decommissioning based on furnishing its own guarantee that funds will be available for decommissioning costs and on a demonstration that the company passes ~~a~~ the financial test of Section II of this Appendix. The terms of the self-guarantee are in Section III of this Appendix. This Appendix establishes criteria for passing the financial test for the self-guarantee and establishes the terms for a self-guarantee.

II. Financial Test

A. To pass the financial test, a company must meet all of the ~~following~~ criteria set forth in this section~~:~~. For purposes of applying the Appendix C criteria, tangible net worth must be calculated to exclude all intangible assets and the net book value of the nuclear facility and site, and total net worth, which may include intangible assets, must be calculated to exclude the net book value and goodwill of the nuclear facility and site. These criteria include:

1. Tangible net worth ~~greater than~~ of at least ~~$10~~ 21 million, ~~or at~~ and total net worth of at least ten (10) times the ~~total current~~ amount of decommissioning ~~cost estimate~~ funds being assured by a self-guarantee ~~(or the current amount required if certification is used), whichever is greater,~~ for all decommissioning activities for which the company is responsible as self-guaranteeing licensee and as parent-guarantor for the total of all nuclear facilities or parts thereof (or the current amount required if certification is used).

2. Assets located in the United States amounting to at least ninety percent (90%) of total assets or at least ten (10) times the total

current decommissioning cost estimate (or the current amount required if certification is used) for all decommissioning activities for which the company is responsible as self-guaranteeing licensee and as parent-guarantor.

3. A ratio of cash flow divided by total liabilities greater than 0.15 and a ratio of total liabilities divided by total net worth less than 1.5.

Appendix C to Section 2. (Cont'd)

B. In addition, to pass the financial test, a company must meet all of the following additional requirements:

1. The company's independent certified public accountant must ~~have~~ compare~~d~~ the data used by the company in the financial test, which is ~~required to be~~ derived from the independently audited year-end financial statements ~~based on United States generally accepted accounting practices~~ for the latest fiscal year, with the amounts in such financial statement. The accountant must evaluate the company's off-balance sheet transactions and provide an opinion on whether those transactions could materially adversely affect the company's ability to pay for decommissioning costs. In connection with ~~that~~ the auditing procedure, the licensee shall inform the Department within ninety (90) days of any matters coming to the auditor's attention ~~that~~ which ~~may~~ cause the auditor to believe that the data specified in the financial test should be adjusted and that the company no longer passes the test.

2. After the initial financial test, the company must ~~repeat the passage of the test~~ annually pass the test and provide documentation of its continued eligibility to use the self-guarantee to the Department within ninety (90) days after the close of each succeeding fiscal year.

3. If the licensee no longer meets the requirements of Section II.A of this Appendix, the licensee must send notice to the Department of its intent to establish alternate financial assurance as specified in the Department's regulations. The notice must be sent by certified mail, return receipt requested, within ninety (90) days after the end of the fiscal year for which the year-end financial data show that the licensee no longer meets the financial test requirements. The licensee must provide alternative financial assurance within 120 days after the end of such fiscal year.

III. **Company Self-Guarantee**

The terms of a self-guarantee which an applicant or licensee furnishes must provide that:

A. The guarantee will remain in force unless the licensee sends notice of cancellation by certified mail, return receipt requested, to the Department. Cancellation may not occur until an alternative financial assurance mechanism is in place.

B. The licensee shall provide alternative financial assurance as specified in the Department's regulations within ninety (90) days following receipt by the Department of a notice of cancellation of the guarantee.

Appendix C to Section 2. (Cont'd)

C. The guarantee and financial test provisions must remain in effect until the Department has terminated the license or until another financial assurance method acceptable to the Department has been put in effect by the licensee.

D. The applicant or licensee must provide to the Department a written guarantee (a written commitment by a corporate officer) which states that the licensee will fund and carry out the required decommissioning activities or, upon issuance of an order by the Department, the licensee will ~~set up and~~ fund ~~a~~ the standby trust in the amount of the current cost estimates for decommissioning.

E. A standby trust to protect public health and safety and the environment must be established for decommissioning costs before the self-guarantee agreement is submitted. The trustee and trust must be acceptable to the Department. An acceptable trustee includes an appropriate State or Federal Government agency or an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a Federal or State agency. The Department will have the right to change the trustee. An acceptable trust will meet the regulatory criteria established in these Regulations that govern the issuance of the license for which the guarantor has accepted the obligation to pay for decommissioning costs.

F. The guarantor must agree that if the guarantor admits in writing its inability to pay its debts generally, or makes a general assignment for the benefit of creditors, or any proceeding is instituted by or against the guarantor seeking to adjudicate it as bankrupt or insolvent, or seeking dissolution, liquidation, winding-up, reorganization, arrangement, adjustment, protection, relief or composition of it or its debts under any law relating to bankruptcy, insolvency, or reorganization or relief of debtors, or seeking the entry of an order for relief or the appointment of a

receiver, trustee, custodian, or other similar official for the guarantor or for any substantial part of its property, or the guarantor takes any action to authorize or effect any of the actions stated in this paragraph, then the Department may:

1. Declare that the financial assurance guaranteed by the self-guarantee agreement is immediately due and payable to the standby trust set up to protect the public health and safety and the environment, without diligence, presentment, demand, protest or any other notice of any kind, all of which are expressly waived by guarantor; and

2. Exercise any and all of its other rights under applicable law.

G. The guarantor must notify the Department, in writing, immediately following the occurrence of any event listed in paragraph F of this section, and must include a description of the event, including major creditors, the amounts involved, and the actions taken to assure that the amount of funds guaranteed by the self-guarantee agreement for decommissioning will be transferred to the standby trust as soon as possible.

APPENDIX D TO SECTION 2

CRITERIA RELATING TO USE OF FINANCIAL TESTS AND SELF GUARANTEES FOR PROVIDING REASONABLE ASSURANCE OF FUNDS FOR DECOMMISSIONING BY NONPROFIT COLLEGES, UNIVERSITIES, AND HOSPITALS

I. Introduction

An applicant or licensee may provide reasonable assurance of the availability of funds for decommissioning based on furnishing its own guarantee that funds will be available for decommissioning costs and on a demonstration that the applicant or licensee passes ~~a~~ the financial test of Section II of this Appendix. The terms of the self-guarantee are in Section III of this Appendix. This Appendix establishes criteria for passing the financial test for the self-guarantee and establishes the terms for a self-guarantee.

II. Financial Test

A. For colleges and universities, to pass the financial test, a college or university must meet either the criteria in paragraph II.A.1. or the criteria in paragraph II.A.2. of this ~~section~~Appendix.

1. For applicants or licensees that issue bonds, a current rating for its most recent uninsured, uncollateralized, and unencumbered bond issuance of AAA, AA, or A (including adjustments of + or -) as issued by Standard and Poor's~~,~~ or Aaa, Aa, or A (including adjustments of 1, 2 or 3) as issued by Moody's.

2. For applicants or licensees that do not issue bonds, unrestricted endowment consisting of assets located in the United States of at least $50 million, or at least thirty (30) times the total current decommissioning cost estimate (or the current amount required if certification is used), whichever is greater, for all decommissioning activities for which the college or university is responsible as self-guaranteeing licensee ~~and as parent guarantor~~.

B. For hospitals, to pass the financial test, a hospital must meet either the criteria in ~~P~~paragraph II.B.1. or the criteria in ~~P~~paragraph II.B.2. of this Appendix.

1. For applicants or licensees that issue bonds, a current rating for its most recent uninsured, uncollateralized, and unencumbered bond issuance of AAA, AA, or A (including adjustments of + or -) as issued by Standard and Poor's ~~(S&P),~~ or Aaa, Aa, or A (including adjustments of 1, 2 or 3) as issued by Moody's.

Appendix D to Section 2. (Cont'd)

2. For applicants or licensees that do not issue bonds, all the following tests must be met:

   a. (Total Revenues less total expenditures) divided by total revenues must be equal to or greater than 0.04.

   b. Long term debt divided by net fixed assets must be less than or equal to 0.67.

   c. (Current assets and depreciation fund) divided by current liabilities must be greater than or equal to 2.55.

   d. Operating revenues must be at least 100 times the total current decommissioning cost estimate (or the current amount required if certification is used) for all decommissioning activities for which the hospital is responsible as self-guaranteeing licensee.

C. In addition, to pass the financial test~~;~~, a licensee must meet all the following requirements:

1. The licensee's independent certified public accountant must ~~have~~ compare~~d~~ the data used by the licensee in the financial test, which is ~~required to be~~ derived from the independently audited year-end financial statements~~, based on United States generally accepted accounting practices,~~ for the latest fiscal year, with the amounts in such financial statement. The accountant must evaluate the licensee's off-balance sheet transactions and provide an opinion on whether those transactions could materially adversely affect the licensee's ability to pay for decommissioning costs. The accountant must verify that a bond rating, if used to demonstrate passage of the financial test, meets the requirements of Section II of this Appendix. In connection with ~~that~~ the auditing procedure, the licensee shall inform the Department within ninety (90) days of any matters coming to the auditor's attention ~~that may~~ which cause the auditor to believe that the data specified in the financial test should be adjusted and that the ~~company~~ licensee no longer passes the test.

2. After the initial financial test, the licensee must repeat ~~the~~ passage of the test and provide documentation of its continued eligibility to use the self-guarantee to the Department within ninety (90) days after the close of each succeeding fiscal year.

Appendix D to Section 2. (Cont'd)

3. If the licensee no longer meets the requirements of Section I of this Appendix, the licensee must send notice to the Department of its intent to establish alternate financial assurance as specified in the Department's regulations. The notice must be sent by certified mail, return receipt requested, within ninety (90) days after the end of the fiscal year for which the year-end financial data show that the licensee no longer meets the financial test requirements. The licensee must provide alternative financial assurance within 120 days after the end of such fiscal year.

III. **Self-Guarantee**

The terms of a self-guarantee which an applicant or licensee furnishes must provide that:

A. The guarantee will remain in force unless the licensee sends notice of cancellation by certified mail, and/or return receipt requested, to the

Department. Cancellation may not occur unless an ~~alternate~~ alternative financial assurance mechanism is in place.

B. The licensee shall provide alternative financial assurance as specified in the Department's regulations within ninety (90) days following receipt by the Department of a notice of cancellation of the guarantee.

C. The guarantee and financial test provisions must remain in effect until the Department has terminated the license or until another financial assurance method acceptable to the Department has been put in effect by the licensee.

D. The applicant or licensee must provide to the Department a written guarantee (a written commitment by a corporate officer or officer of the institution) which states that the licensee will fund and carry out the required decommissioning activities or, upon issuance of an order by the Department, the licensee will ~~set up and~~ fund ~~a~~ the standby trust in the amount of the current cost estimates for decommissioning.

E. 1. If, at any time, the licensee's most recent bond issuance~~s~~ ceases to be rated in any category of "A" or above by either Standard and Poor's or Moody's, the licensee ~~will provide notice~~ shall notify the Department in writing ~~of such fact to the Department~~ within twenty (20) days after publication of the change by the rating service.

2. If the licensee's most recent bond issuance ceases to be rated in any category of "A" and above by Standard and Poor's or in any category of "A3" and above by Moody's, the licensee no longer meets the requirements of Section II.A. of this Appendix.

F. 1. A standby trust to protect public health and safety and the environment must be established for decommissioning costs before the self-guarantee agreement is submitted.

2. The trustee and trust must be acceptable to the Department. An acceptable trustee includes an appropriate State or Federal Government agency or an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a Federal or State agency. The Department has the right to change the trustee. An acceptable trust will meet the regulatory criteria established in these Regulations that govern the issuance of the license for which the guarantor has accepted the obligation to pay for decommissioning costs.

G. The guarantor must agree that if the guarantor admits in writing its inability to pay its debts generally, or makes a general assignment for the benefit of creditors, or any proceeding is instituted by or against the guarantor seeking to adjudicate it as bankrupt or insolvent, or seeking dissolution, liquidation, winding-up, reorganization, arrangement, adjustment, protection, relief or composition of it or its debts under any law relating to bankruptcy, insolvency, or reorganization or relief of debtors, or seeking the entry of an order for relief or the appointment of a receiver, trustee, custodian, or other similar official for guarantor or for any substantial part of its property, or the guarantor takes any action to authorize or effect any of the actions stated in this paragraph, then the Department may:

1. Declare that the financial assurance guaranteed by the self-guarantee agreement is immediately due and payable to the standby trust set up to protect the public health and safety and the environment, without diligence, presentment, demand, protest or any other notice of any kind, all of which are expressly waived by guarantor; and

2. Exercise any and all of its other rights under applicable law.

H. The guarantor must notify the Department, in writing, immediately following the occurrence of any event listed in paragraph G of this section, and must include a description of the event, including major creditors, the amounts involved, and the actions taken to assure that the amount of funds guaranteed by the self-guarantee agreement for decommissioning will be transferred to the standby trust as soon as possible.

APPENDIX B TO SECTION 3

(For use in RH-409 and RH-1303)

Material	Microcuries	Material	Microcuries
Americium-241	0.01	Fluorine-18	1,000
Antimony-122	100	Gadolinium-153	10
Antimony-124	10	Gadolinium-159	100
Antimony-125	10	~~Gallium-67~~	~~100~~
Arsenic-73	100	Gallium-72	10
Arsenic-74	10	~~Germanium-68~~	~~10~~
Arsenic-76	10	Germanium-71	100
Arsenic-77	100	~~Gold-195~~	~~10~~
Barium-131	10	Gold-198	100
Barium-133	10	Gold-199	100
Barium-140	10	Hafnium-181	10
Bismuth-210	1	Holmium-166	100
Bromine-82	10	Hydrogen-3	1,000
Cadmium-109	10	~~Indium-111~~	~~100~~
Cadmium-115m	10	Indium-113m	100
Cadmium-115	100	Indium-114m	10
Calcium-45	10	Indium-115m	100
Calcium-47	10	Indium-115	10
Carbon-14	100	~~Iodine-123~~	~~100~~
Cerium-141	100	Iodine-125	1
Cerium-143	100	Iodine-126	1
Cerium-144	1	Iodine-129	0.1
~~Cesium-129~~	~~100~~	Iodine-131	1
Cesium-131	1,000	Iodine-132	10
Cesium-134m	100	Iodine-133	1
Cesium-134	1	Iodine-134	10
Cesium-135	10	Iodine-135	10
Cesium-136	10	Iridium-192	10
Cesium-137	10	Iridium-194	100
Chlorine-36	10	~~Iron-54~~	~~10~~
Chlorine-38	10	Iron-55	100
Chromium-51	1,000	Iron-59	10
~~Cobalt-57~~	~~100~~	Krypton-85	100
Cobalt-58m	10	Krypton-87	10
Cobalt-58	10	Lanthanum-140	10
Cobalt-60	1	Lutetium-177	100
Copper-64	100	Manganese-52	10
Dysprosium-165	10	Manganese-54	10
Dysprosium-166	100	Manganese-56	10
Erbium-169	100	Mercury-197m	100
Erbium-171	100	Mercury-197	100
Europium-152 9.2h	100	Mercury-203	10
Europium-152 13yr	1	Molybdenum-99	100
Europium-154	1	Neodymium-147	100
Europium-155	10	Neodymium-149	100

Material	Microcuries	Material	Microcuries
Nickel-59	100	Sodium-24	10
Nickel-63	10	Strontium-85	10
Nickel-65	100	Strontium-89	1
Niobium-93m	10	Strontium-90	0.1
Niobium-95	10	Strontium-91	10
Niobium-97	10	Strontium-92	10
Osmium-185	~~100~~10	Sulfur-35	100
Osmium-191m	100	Tantalum-182	10
Osmium-191	100	Technetium-96	~~100~~10
Osmium-193	100	Technetium-97m	100
Palladium-103	100	Technetium-97	100
Palladium-109	100	Technetium-99m	100
Phosphorus-32	10	Technetium-99	10
Platinum-191	100	Tellurium-125m	10
Platinum-193m	100	Tellurium-127m	10
Platinum-193	100	Tellurium-127	100
Platinum-197m	100	Tellurium-129m	10
Platinum-197	100	Tellurium-129	100
Plutonium-239	0.01	Tellurium-131m	10
Polonium-210	0.1	Tellurium-132	10
Potassium-42	10	Terbium-160	10
~~Potassium-43~~	~~10~~	Thallium-200	100
Praseodymium-142	100	Thallium-201	100
Praseodymium-143	100	Thallium-202	100
Promethium-147	10	Thallium-204	10
Promethium-149	10	Thorium (natural)20/	100
Radium-226	0.01	Thulium-170	10
Rhenium-186	100	Thulium-171	10
Rhenium-188	100	Tin-113	10
Rhodium-103m	100	Tin-125	10
Rhodium-105	100	Tungsten-181	10
~~Rubidium-81~~	~~10~~	Tungsten-185	10
Rubidium-86	10	Tungsten-187	100
Rubidium-87	10	Uranium (natural)21/	100
Ruthenium-97	100	Uranium-233	0.01
Ruthenium-103	10	U-234 – U-235	0.01
Ruthenium-105	10	Vanadium-48	10
Ruthenium-106	1	Xenon-131m	1,000
Samarium-151	10	Xenon-133	100
Samarium-153	100	Xenon-135	100
Scandium-46	10	Ytterbium-175	100
Scandium-47	100	~~Yttrium-87~~	~~10~~
Scandium-48	10	~~Yttrium-88~~	~~10~~
Selenium-75	10	Yttrium-90	10
Silicon-31	100	Yttrium-91	10
Silver-105	10	Yttrium-92	100
Silver-110m	1	Yttrium-93	100
Silver-111	100	Zinc-65	10
~~Sodium-22~~	~~1~~	Zinc-69m	100

Material	Microcuries
Zinc-69	1,000
Zirconium-93	10
Zirconium-95	10
Zirconium-97	10
Any alpha emitting radionuclide not listed above or mixtures of alpha emitters of unknown composition	0.01
Any radionuclide other than alpha emitting radionuclide, not listed above or mixtures of beta emitters of unknown composition	0.1

FOOTNOTES TO SECTION 2

~~3/~~ ~~Authority to transfer possession or control by the manufacturer, processor or producer of any equipment, device, commodity or other product containing source or byproduct material whose subsequent possession, use, transfer and disposal by all other persons are exempted from regulatory requirements may be obtained only from the Department.~~

~~5/~~ ~~Authority to transfer possession or control by the manufacturer, processor or producer of any equipment, device, commodity or other product containing byproduct material whose subsequent possession, use, transfer and disposal by all other persons are exempted from regulatory requirements may be obtained only from the U.S. Nuclear Regulatory Commission, Washington, D.C. 20555.~~

~~7/~~ ~~Any notification of incidents referred to in those requirements shall be filed with or made to the Department.~~

~~10~~9/ Sources licensed under RH-405.e., RH-405.h., or RH-405.i. prior to January 19, 1975 may bear labels authorized by the regulations in effect on January 1, 1975.

~~9~~10/ The model, serial number, and the name of the manufacturer or initial transferor may be omitted from this label provided they are elsewhere specified in labeling affixed to the device.

SECTION 3.
STANDARDS FOR PROTECTION AGAINST RADIATION

RH-1100. **Definitions**.

~~cu.~~ **Residual radioactivity** - Radioactivity in structures, materials, soils, groundwater, and other media at a site resulting from activities under the licensee's control. This includes radioactivity from all licensed and unlicensed sources used by the licensee, but~~,~~ excludes background radiation. It also includes radioactive materials remaining at the site as a result of routine or accidental releases of radioactive material at the site and previous burials at the site, even if those burials were made in accordance with the provisions of Part E., "Waste Disposal."

RH-1101. ~~Other Definitions. Definitions of certain other words and phrases as used in these Regulations are set forth in other Parts.~~
Reserved.

~~RH-1213. Surface Contamination Limits for Facilities and Equipment.~~

a. ~~Prior to vacating any facility or releasing areas or equipment for unrestricted use, each licensee shall ensure that radioactive contamination has been removed to levels as low as reasonably achievable. In no case shall the licensee vacate a facility or release areas or equipment for unrestricted use until radioactive surface contamination levels are below the limits specified in RH-1213.b.~~

b. **ACCEPTABLE SURFACE CONTAMINATION LEVELS**

Nuclide[a]	**Average**[b,c,f]	**Maximum**[b,d,f]	**Removable**[b,c,e,f]
U-nat, U-235, U-238, and associated decay products except Ra-226, Th-230, Ac-227, and Pa-231	5,000 dpm alpha/100 cm^2	15,000 dpm alpha/100 cm^2	1,000 dpm alpha/100 cm^2
Transuranics, Ra-226, Ra-228, Th-230, Th-228, Pa-231, Ac-227, I-129	100 dpm/100 cm^2	300 dpm/100 cm^2	20 dpm/100 cm^2
Th-nat, Th-232, Sr-90, Ra-223, Ra-224, U-232, I-125, I-126, I-131, I-133	1,000 dpm/100 cm^2	3,000 dpm/100 cm^2	200 dpm/100 cm^2
Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and others noted above.	5,000 dpm beta, gamma/100 cm^2	15, 000 dpm beta, gamma/100 cm^2	1,000 dpm beta, gamma/100 cm^2

[a] Where surface contamination by both alpha and beta-gamma emitting nuclides exists, the limits established for alpha and beta-gamma emitting nuclides should apply independently.

[b] As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

[c] Measurements of average contamination level should not be averaged over more than one square meter. For objects of less surface area, the average should be derived for each object.

[d] The maximum contamination level applies to an area of not more than 100 cm^2.

[e] The amount of removable radioactive material per 100 cm^2 of surface area should be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of less surface area is determined, the pertinent levels should be reduced proportionally and the entire surface should be wiped.

[f] The average and maximum radiation levels associated with surface contamination resulting from beta-gamma emitters should not exceed 0.2 mrad/hr at one (1) cm and 1.0 mrad/hr at 1 cm, respectively, measured through not more than seven (7) milligrams per square centimeter of total absorber.

RH-1214. Deleted.

RH-1215. ~~Reserved.~~

General Provisions and Scope.

a. Any person licensed to receive, possess, own, acquire, use, process, transfer, or dispose of radioactive material is subject to RH-1215. through RH-1220.

b. After a site has been decommissioned and the license terminated in accordance with the criteria in RH-1215. through RH-1220., the Department will require additional cleanup only if, based on new information, it determines that the criteria in RH-1215. through RH-1220. were not met and residual radioactivity remaining at the site could result in significant threat to public health and safety.

c. When calculating TEDE to the average member of the critical group, the licensee shall determine the peak annual TEDE dose expected within the first 1000 years after decommissioning.

RH-1217. **Criteria for License Termination Under Restricted Conditions**.

A site will be considered acceptable for license termination under restricted conditions if: …

c. The licensee has provided sufficient financial assurance to enable an independent third party, including a governmental custodian of a site, to assume and carry out responsibilities for any necessary control and maintenance of the site. Acceptable financial assurance mechanisms are:

1. ~~Funds placed into an account segregated from the licensee's assets and outside the licensee's administrative control, as described in RH-409.h.6.A.;~~ Funds placed into a trust segregated from the licensee's assets and outside the licensee's administrative control, and in which the adequacy of the trust funds is to be assessed based on an assumed annual one percent (1%) real rate of return on investment;

~~2. Surety method, insurance, or other guarantee method, as described in RH-409.h.6.B.;~~

~~3.~~2. A statement of intent in the case of State or local Government licensees, as described in RH-409.h.6.D. or;

~~4.~~ 3. When a government entity is assuming custody and ownership of a site, an arrangement that is deemed acceptable by such governmental entity.

RH-1218. **Alternate Criteria for License Termination**.

a. The Department may terminate a license using alternate criteria greater than the dose criterion of RH-1216., RH-1217.b., and RH-1217.d.1.A.i., if the licensee:

1. Provides assurance that public health and safety would continue to be protected, and that it is unlikely that the dose from all man-made sources combined, other than medical, would be more than the 100 mrem/y (1 mSv/y) limit of Part C to Section 3, by submitting an analysis of possible sources of exposure;

2. Has employed to the extent practical restrictions on site use according to the provisions of RH-1217. in minimizing exposures at the site; and …

5. Has provided sufficient financial assurance in the form of a trust fund to enable an independent third party, including a governmental custodian of a site, to assume and carry out responsibilities for any necessary control and maintenance of the site.

RH-1220. **Minimization of Contamination**.

a. Applicants for licenses, other than renewals, shall describe in the application how facility design and procedures for operation will minimize, to the extent practicable, contamination of the facility and the environment, facilitate eventual decommissioning, and minimize, to the extent practicable, the generation of radioactive waste.

b. Licensees shall, to the extent practical, conduct operations to minimize the introduction of residual radioactivity into the site, including the subsurface, in accordance with the existing radiation protection requirements in Part A of Section 3 and radiological criteria for license termination in RH-1215. through RH-1220.

RH-1300. **Surveys**.

~~a. As used in these Regulations, "survey" means an evaluation of actual or potential radiation hazards incident to the production, use, release, disposal and/or presence of sources of radiation under a specific set of conditions. When appropriate, such evaluation includes, but is not limited to, tests, a physical survey of the location of materials and equipment, and measurements of levels of radiation or concentrations of radioactive material present.~~

~~b.~~a. Each licensee or registrant shall make or cause to be made, surveys of areas, including the subsurface, that:

1. May be necessary for the licensee or registrant to comply with the ~~R~~regulations in this Section; and

2. Are reasonable under the circumstances to evaluate:

A. The magnitude and extent of radiation levels,

B. Concentrations or quantities of ~~radioactive material~~ residual radioactivity, and

C. The potential radiological hazards of the radiation levels and residual radioactivity detected.

b. Notwithstanding RH-1500.c.1., records from surveys describing the location and amount of subsurface residual radioactivity identified at the site must be kept with records important for decommissioning, and such records must be retained in accordance with RH-409.h.7., as applicable.

c. The licensee or registrant shall ensure that instruments and equipment used for quantitative radiation measurements (e.g., dose rate and effluent monitoring) are calibrated periodically for the radiation measured.

RH-1801. **Equipment Control**.

a. **Performance requirements for radiography equipment**.

Equipment used in industrial radiographic operations must meet the following minimum criteria:

1. Each radiographic exposure device, source assembly or sealed source, and all associated equipment must meet the requirements specified in American National Standards Institute N432-1980,

"Radiological Safety for the Design and Construction of Apparatus for Gamma Radiography," (published as NBS Handbook 136, issued January 1981).

~~This publication has been approved for incorporation by Radiation Control.~~ This publication may be purchased ~~through~~ from the American National Standards Institute, Inc., ~~Customer Service,~~ 25 West 43rd Street, ~~4th Floor,~~ New York, New York 10036; ~~(~~Telephone: (212) 642-~~4980~~ 4900~~)(Email: ansionline@ansi.org)~~.

A copy of the document is available for inspection in the office of the Arkansas Department of Health, Radiation Control, 5800 West 10th Street, Suite 100, Little Rock, Arkansas 72204.

Engineering analysis may be submitted by an applicant or licensee to demonstrate the applicability of previously performed testing on similar individual radiography equipment components. Upon review, the Department may find this an acceptable alternative to actual testing of the component pursuant to the above referenced standard.

SECTION 4.
TRANSPORTATION OF RADIOACTIVE MATERIALS

RH-3100. **Definitions**.

The following terms are as defined for the purpose of this Section. To ensure compatibility with international transportation standards, all limits in this Section are given in terms of dual units: The International System of Units (SI) followed or preceded by U.S. standard or customary units. The U.S. customary units are not exact equivalents, but rounded to a convenient value, providing a functionally equivalent unit. For the purpose of this Section, either unit may be used. …

Indian tribe - An Indian or Alaska native tribe, band, nation, pueblo, village, or community that the Secretary of the Interior acknowledges to exist as an Indian tribe pursuant to the Federally Recognized Indian Tribe List Act of 1994, 25 U.S.C. 479a.

Tribal official - The highest ranking individual that represents Tribal leadership, such as the Chief, President, or Tribal Council leadership.

RH-3509. **Advance Notification of Shipment of Irradiated Reactor Fuel and Nuclear Waste**.

a. 1. As specified in RH-3509.b., c., and d., each licensee shall provide advance notification to the governor of a State, or the governor's designee, of the shipment of licensed material, ~~through,~~ within or across the boundary of the State, before the transport, or delivery to a carrier, for transport, of licensed material outside the confines of the licensee's plant or other place of use or storage.

2. As specified in RH-3509.b., c., and d., after June 11, 2013, each licensee shall provide advance notification to the Tribal official of participating Tribes referenced in paragraph c.3.C of this section, or the official's designee, of the shipment of licensed material, within or across the boundary of the Tribe's reservation, before the transport, or delivery to a carrier, for transport, of licensed material outside the confines of the licensee's plant or other place of use or storage.

b. Advance notification is required under this section for shipments of irradiated reactor fuel in quantities less than that subject to advance notification requirements as described in 10 CFR Part 73. Advance notification is also required under this section for shipment of licensed material, other than irradiated fuel, meeting the following three conditions:

1. The licensed material is required by this Section to be in Type B packaging for transportation;

2. The licensed material is being transported to or across a State boundary in route to a disposal facility or to a collection point for transport to a disposal facility; and

3. The quantity of licensed material in a single package exceeds the least of the following:

A. 3000 times the A_1 value of the radionuclides as specified in Table A-1 of Appendix A to this Section for special form radioactive material;

B. 3000 times the A_2 value of the radionuclides as specified in Table A-1 of Appendix A to this Section for normal form radioactive material; or

C. 1000 TBq (27,000 Ci).

c. **Procedures for submitting advance notification**.

1. The notification must be made in writing to: ~~the office of each appropriate governor or governor's designee and to the Director, Division of Security Policy, Office of Nuclear Security and Incident Response.~~

   A. The office of each appropriate governor or governor's designee;

   B. The office of each appropriate Tribal official or Tribal official's designee; and

   C. The Director, Division of Security Policy, Office of Nuclear Security and Incident Response.

2. A notification delivered by mail must be postmarked at least seven (7) days before the beginning of the seven (7) day period during which departure of the shipment is estimated to occur.

3. A notification delivered by any other means than mail must reach the office of the governor or of the governor's designee or the Tribal official or Tribal official's designee at least four (4) days before the beginning of the seven (7) day period during which departure of the shipment is estimated to occur.

   A. A list of the names and mailing addresses of the governors' designees receiving advance notification of transportation of nuclear waste was published in the Federal Register on June 30, 1995 (60 FR 34306).

   B. The list of governor's designees and Tribal official's designees of participating Tribes will be published annually in the Federal Register on or about June 30 to reflect any changes in information.

   C. A list of the names and mailing addresses of the governors' designees and Tribal officials' designees of participating Tribes is available on request from the Director, Division of Intergovernmental Liaison and Rulemaking, Office of Federal and State Materials and Environmental Management Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

4. The licensee shall retain a copy of the notification as a record for three (3) years.

d. **Information to be furnished in advance notification of shipment**.

Each advance notification of shipment of irradiated reactor fuel or nuclear waste must contain the following information:

1. The name, address, and telephone number of the shipper, carrier, and receiver of the irradiated reactor fuel or nuclear waste shipment;

2. A description of the irradiated reactor fuel or nuclear waste shipment, as specified in the regulations of DOT in 49 CFR 172.202 and 172.203(d);

3. The point of origin of the shipment and the seven (7) day period during which departure of the shipment is estimated to occur;

4. The seven (7) day period during which arrival of the shipment at State boundaries or Tribal reservation boundaries is estimated to occur;

5. The destination of the shipment, and the seven (7) day period during which arrival of the shipment is estimated to occur; and

6. A point of contact, with a telephone number, for current shipment information.

e. **Revision notice**.

A licensee who finds that schedule information previously furnished to a governor or governor's designee or a Tribal official or Tribal official's designee, in accordance with this section, will not be met, shall telephone a responsible individual in the office of the governor of the State or of the governor's designee or the Tribal official or the Tribal official's designee and inform that individual of the extent of the delay beyond the schedule originally reported. The licensee shall maintain a record of the name of the individual contacted for three (3) years.

f. **Cancellation notice**.

1. Each licensee who cancels an irradiated reactor fuel or nuclear waste shipment for which advance notification has been sent shall send a cancellation notice to the governor of each State or to the governor's designee previously notified, each Tribal official or to the Tribal official's designee previously notified, and ~~to~~ the Director, Division of Security Policy, Office of Nuclear Security and Incident Response.

2. The licensee shall state in the notice that it is a cancellation and identify the advance notification that is being canceled. The licensee shall retain a copy of the notice as a record for three (3) years.

TABLE A-1—A_1 AND A_2 VALUES FOR RADIONUCLIDES …

Te-132 (a)		$5.0X10^{-1}$	$1.4X10^{1}$	$4.0X10^{-1}$	$1.1X10^{1}$	~~$3.1X10^{4}$~~ $1.1X10^{4}$	$3.0X10^{5}$

SECTION 8. IRRADIATORS

RH-7011. **Application for a Specific License**.

A person, as defined in RH-1100.bx. of these Regulations, shall file an application for a specific license authorizing the use of ~~radioactive material or radiation producing machines in well logging~~ sealed sources in an irradiator in accordance with RH-403. and RH-404.

RH-7023. **Access Control**.

g. Each entrance to the radiation room of a panoramic irradiator and each entrance to the area within the personnel access barrier of an underwater irradiator must ~~have a sign bearing the radiation symbol and the words, "**Caution (or Danger) Radioactive Material**"~~ be posted as required by RH-1303.b. ~~Panoramic irradiators must also have a sign stating "**High Radiation Area**," but~~ Radiation postings for panoramic irradiators must comply with the posting requirements of RH-1303.b., except that ~~the~~ signs may be removed, covered, or otherwise made inoperative when the sources are fully shielded.

SECTION 9.
USE OF RADIONUCLIDES IN THE HEALING ARTS

RH- 8100. **Definitions**.

~~aj.~~ **Sealed Source and Device Registry** – The national registry that contains all the registration certificates, generated ~~maintained~~ by both the Nuclear Regulatory Commission and the Agreement States, that summarize the radiation safety information for the sealed sources and devices and describe the licensing and use conditions approved for the product.